DAHLGREN
WASTEWATER TREATMENT PLANT

VPDES PERMIT No. VA0026514

0.97 MGD
VIRGINIA POLLUTANT DISCHARGE ELIMINATION SYSTEM

PERMIT APPLICATION - 2013

KING GEORGE COUNTY SERVICE AUTHORITY
9207 Kings Highway
King George, VA 22485
Phone: (540)775-2746
Fax: (540) 775-5560

Prepared and submitted by:

Retaw Engineering
A GLOBAL WATER PRACTICE

P. O. BOX 5881
Midlothian, VA 23112
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July 15, 2013

COVER LETTER

Next Page

Mailing: P. O BOX 5881, Midlothian, Virginia 23112
Phone: (804) 744-1792 | **Fax**: (804) 545-9075
Location: 2903 Sagecreek Circle, Midlothian, VA 23112

July 17, 2013

Sent Via- Email

Ms Joan C. Crowther,
Permit Writer, Northern Regional Office
Virginia Department of Environmental Quality
13901 Crown Court
Woodbridge, VA 22193

Re: Application for VPDES Permit No. VA0026514 Dahlgren Wastewater Treatment Plant

Dear Ms. Crowther:
Enclosed is a VPDES permit application for the Dahlgren Wastewater Treatment Plant (WWTP) submitted on behalf of the King George County Service Authority. This application is for the issuance and modification of the existing VPDES permit for the 1.0 MGD facility which expires January 11, 2014 at a revised Design capacity of 0.97 MGD. According to the VPDES permit, the application must be submitted 180 days before the expiration date or by July 15, 2013. Retaw Engineering requested, and was granted an extension via email to July 17, 2013. A hard copy of this application has been mailed to you.

This application contains the following documents:

1.	Cover Letter		1
2.	EPA Form 3510-1A		2
3.	EPA Form 3510-2A		22
	a. Attachment A –Part D – Expanded Testing Data		
	b. Attachment B –Part E – Toxicity Test Results		
	c. Figure 1 - Topography Map		1
	d. Figure 2 - Vicinity & Topographic Map	1	
	e. Figure 3 - Location of Wastewater Treatment Plant & Service Area		1
4.	Description of existing facility		
	a. Figure 4 -Process Flow Diagram		
	b. Chemical Use Narrative		1
	c. Chemical Used	1	
5.	Attachment C – Belt Filter Press Sludge Cake Test Results		4
6.	VPDES Permit Application Addendum	1	
7.	Sludge Application Form		18
8.	Attachment D:		
	a. Sludge generation and handling at the Dahlgren WWTP	2	
	b. Process Flow Diagram - Sludge digestion & Dewatering	1	
	c. Dewatered Sludge hauling route (to the King George landfill)	1	
9.	Completed Public Notice & Billing Authorization form	1	

Should you have any questions or need clarifications regarding this application, please feel free to contact me at (804) 245 2979 or Mr. Christopher F. Thomas, P.E., at the King George County Service Authority, (540) 775-8563.

Very Truly Yours,

Ignatius Mutoti, PhD, PE
Retaw Engineering

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Please print or type in the unshaded areas only. Form Approved. OMB No. 2040-0086.

FORM 1 GENERAL

U.S. ENVIRONMENTAL PROTECTION AGENCY
GENERAL INFORMATION
Consolidated Permits Program
(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER: S F VA0026514 T/A C D

LABEL ITEMS
- I. EPA I.D. NUMBER
- III. FACILITY NAME
- V. FACILITY MAILING ADDRESS
- VI. FACILITY LOCATION

PLEASE PLACE LABEL IN THIS SPACE

GENERAL INSTRUCTIONS
If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of **bold-faced terms**.

SPECIFIC QUESTIONS	Mark "X" YES	NO	FORM ATTACHED	SPECIFIC QUESTIONS	Mark "X" YES	NO	FORM ATTACHED
A. Is this facility a **publicly owned treatment works** which results in a **discharge** to **waters of the U.S.**? (FORM 2A)	X (16)	(17)	X (18)	B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a **discharge** to **waters of the U.S.**? (FORM 2B)	(19)	X (20)	(21)
C. Is this a facility which currently results in **discharges** to **waters of the U.S.** other than those described in A or B above? (FORM 2C)	(22)	X (23)	(24)	D. Is this a proposed facility *(other than those described in A or B above)* which will result in a **discharge** to **waters of the U.S.**? (FORM 2D)	(25)	X (26)	(27)
E. Does or will this facility treat, store, or dispose of **hazardous wastes**? (FORM 3)	(28)	X (29)	(30)	F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)	(31)	X (32)	(33)
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)	(34)	X (35)	(36)	H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)	(37)	X (38)	(39)
I. Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)	(40)	X (41)	(42)	J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)	(43)	X (44)	(45)

III. NAME OF FACILITY

1 SKIP: DAHLGREN WASTEWATER TREATMENT PLANT

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*	B. PHONE *(area code & no.)*
2 HOCKADAY, JEFF, WASTEWATER MANAGER	(540) 775-2746

V. FACILTY MAILING ADDRESS

A. STREET OR P.O. BOX: 3 9207 KINGS HIGHWAY

B. CITY OR TOWN	C. STATE	D. ZIP CODE
4 KING GEORGE	VA	22485

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER: 5 16383 DAHLGREN ROAD

B. COUNTY NAME: King George

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE *(if known)*
6 King George	VA	22485	

EPA Form 3510-1 (8-90) CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

VII. SIC CODES *(4-digit, in order of priority)*

A. FIRST	B. SECOND
4952 *(specify)* Sewage Treatment Plant or Facility	*(specify)*
C. THIRD	**D. FOURTH**
(specify)	*(specify)*

VIII. OPERATOR INFORMATION

A. NAME: King George County Service Authority

B. Is the name listed in Item VIII-A also the owner? ☑ YES ☐ NO

C. STATUS OF OPERATOR *(Enter the appropriate letter into the answer box: if "Other," specify.)*

F = FEDERAL
S = STATE
P = PRIVATE
M = PUBLIC *(other than federal or state)*
O = OTHER *(specify)*

M *(specify)*

D. PHONE *(area code & no.)*: A (540) 775-2746

E. STREET OR P.O. BOX: 9207 Kings Highway

F. CITY OR TOWN: King George

G. STATE: VA

H. ZIP CODE: 22485

IX. INDIAN LAND

Is the facility located on Indian lands? ☐ YES ☑ NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES *(Discharges to Surface Water)*	D. PSD *(Air Emissions from Proposed Sources)*
N VA0026514	P
B. UIC *(Underground Injection of Fluids)*	**E. OTHER** *(specify)*
U	VAN010060 *(specify)* VPDES General Permit for Total Nitrogen and Total Phosphorus Discharges and Watershed Trading in the Chesapeake Watershed, Virginia
C. RCRA *(Hazardous Wastes)*	**E. OTHER** *(specify)*
R	*(specify)*

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers, and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS *(provide a brief description)*

Wastewater Treatment Plant in King George County, Virginia.

The existing plant is a 1.0 MGD Oxidation ditch Public Owned Treatment Works (POTW) treating domestic wastewater - Residential and Businesses.
The existing Plant is currently undergoing design upgrades to enhance treatment. However, the additional upgrades for enhanced treatment for the removal of nitrogen will result in reduction in Plant hydraulic capacity from 1.0 MGD to 0.97 MGD

XIII. CERTIFICATION *(see instructions)*

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE *(type or print)*	B. SIGNATURE	C. DATE SIGNED
CHRISTOPHER F. THOMAS, PE GENERAL MANAGER	Christopher F. Thomas	07/12/2013

COMMENTS FOR OFFICIAL USE ONLY

C

Disclaimer

This is an updated PDF document that allows you to type your information directly into the form and to save the completed form. This form is the most updated form currently available.

Note: This form can be viewed and saved only using Adobe Acrobat Reader version 7.0 or higher, or if you have the full Adobe Professional version.

Instructions:

1. Type in your information
2. Save file (if desired)
3. Print the completed form
4. Sign and date the printed copy
5. Mail it to the directed contact.

FACILITY NAME AND PERMIT NUMBER:
DAHLGREN WASTEWATER TREATMENT PLANT VA0026514

Form Approved 1/14/99
OMB Number 2040-0086

FORM 2A NPDES

NPDES FORM 2A APPLICATION OVERVIEW

APPLICATION OVERVIEW

Form 2A has been developed in a modular format and consists of a "Basic Application Information" packet and a "Supplemental Application Information" packet. The Basic Application Information packet is divided into two parts. All applicants must complete Parts A and C. Applicants with a design flow greater than or equal to 0.1 mgd must also complete Part B. Some applicants must also complete the Supplemental Application Information packet. The following items explain which parts of Form 2A you must complete.

BASIC APPLICATION INFORMATION:

A. Basic Application Information for all Applicants. All applicants must complete questions A.1 through A.8. A treatment works that discharges effluent to surface waters of the United States must also answer questions A.9 through A.12.

B. Additional Application Information for Applicants with a Design Flow ≥ 0.1 mgd. All treatment works that have design flows greater than or equal to 0.1 million gallons per day must complete questions B.1 through B.6.

C. Certification. All applicants must complete Part C (Certification).

SUPPLEMENTAL APPLICATION INFORMATION:

D. Expanded Effluent Testing Data. A treatment works that discharges effluent to surface waters of the United States and meets one or more of the following criteria must complete Part D (Expanded Effluent Testing Data):

1. Has a design flow rate greater than or equal to 1 mgd,
2. Is required to have a pretreatment program (or has one in place), or
3. Is otherwise required by the permitting authority to provide the information.

E. Toxicity Testing Data. A treatment works that meets one or more of the following criteria must complete Part E (Toxicity Testing Data):

1. Has a design flow rate greater than or equal to 1 mgd,
2. Is required to have a pretreatment program (or has one in place), or
3. Is otherwise required by the permitting authority to submit results of toxicity testing.

F. Industrial User Discharges and RCRA/CERCLA Wastes. A treatment works that accepts process wastewater from any significant industrial users (SIUs) or receives RCRA or CERCLA wastes must complete Part F (Industrial User Discharges and RCRA/CERCLA Wastes). SIUs are defined as:

1. All industrial users subject to Categorical Pretreatment Standards under 40 Code of Federal Regulations (CFR) 403.6 and 40 CFR Chapter I, Subchapter N (see instructions); and
2. Any other industrial user that:
   a. Discharges an average of 25,000 gallons per day or more of process wastewater to the treatment works (with certain exclusions); or
   b. Contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the treatment plant; or
   c. Is designated as an SIU by the control authority.

G. Combined Sewer Systems. A treatment works that has a combined sewer system must complete Part G (Combined Sewer Systems).

ALL APPLICANTS MUST COMPLETE PART C (CERTIFICATION)

BASIC APPLICATION INFORMATION

PART A. BASIC APPLICATION INFORMATION FOR ALL APPLICANTS:

All treatment works must complete questions A.1 through A.8 of this Basic Application Information packet.

A.1. Facility Information.

Facility name: DAHLGREN WASTEWATER TREATMMENT PLANT

Mailing Address: 9207 KINGS HIGHWAY
KING GEORGE, VIRGINIA 22485

Contact person: JEFF HOCKADAY

Title: WASTEWATER MANAGER

Telephone number: (540) 775-2746

Facility Address (not P.O. Box): 16383 DAHLGREN ROAD
KINGE GEORGE, VIRGINIA 22485

A.2. Applicant Information. If the applicant is different from the above, provide the following:

Applicant name: King George County Service Authority

Mailing Address: 9207 Kings Highway
King George, VA 22485

Contact person: Christopher F. Thomas, PE

Title: General Manager

Telephone number: (540) 775-2746

Is the applicant the owner or operator (or both) of the treatment works?

✓ owner ✓ operator

Indicate whether correspondence regarding this permit should be directed to the facility or the applicant.

_____ facility ✓ applicant

A.3. Existing Environmental Permits. Provide the permit number of any existing environmental permits that have been issued to the treatment works (include state-issued permits).

NPDES	VA0026514	PSD	
UIC		Other	VAN010060
RCRA		Other	

A.4. Collection System Information. Provide information on municipalities and areas served by the facility. Provide the name and population of each entity and, if known, provide information on the type of collection system (combined vs. separate) and its ownership (municipal, private, etc.).

Name	Population Served	Type of Collection System	Ownership
Residential	5,240	Force Main/Gravity	Municipal
1 School	90 Equivalent Pop.	Force Main/Gravity	Municipal
Commercial	350 Equivalent Pop.	Force Main/Gravity	Municipal
Total population served	5,680		

A.5. Indian Country.

a. Is the treatment works located in Indian Country?

_____ Yes ✓ No

b. Does the treatment works discharge to a receiving water that is either in Indian Country or that is upstream from (and eventually flows through) Indian Country?

_____ Yes ✓ No

A.6. Flow. Indicate the design flow rate of the treatment plant (i.e., the wastewater flow rate that the plant was built to handle). Also provide the average daily flow rate and maximum daily flow rate for each of the last three years. Each year's data must be based on a 12-month time period with the 12th month of "this year" occurring no more than three months prior to this application submittal.

a. Design flow rate 1.0 mgd

	Two Years Ago	Last Year	This Year	
b. Annual average daily flow rate	0.272	0.206	0.307	mgd
c. Maximum daily flow rate	0.373	0.376	0.683	mgd

A.7. Collection System. Indicate the type(s) of collection system(s) used by the treatment plant. Check all that apply. Also estimate the percent contribution (by miles) of each.

✓ Separate sanitary sewer	100 %
_____ Combined storm and sanitary sewer	_____ %

A.8. Discharges and Other Disposal Methods.

a. Does the treatment works discharge effluent to waters of the U.S.? ✓ Yes _____ No

If yes, list how many of each of the following types of discharge points the treatment works uses:

i. Discharges of treated effluent	1
ii. Discharges of untreated or partially treated effluent	0
iii. Combined sewer overflow points	0
iv. Constructed emergency overflows (prior to the headworks)	0
v. Other _____	0

b. Does the treatment works discharge effluent to basins, ponds, or other surface impoundments that do not have outlets for discharge to waters of the U.S.? _____ Yes ✓ No

If yes, provide the following for each surface impoundment:

Location: _____

Annual average daily volume discharged to surface impoundment(s) _____ mgd

Is discharge ✓ continuous or _____ intermittent?

c. Does the treatment works land-apply treated wastewater? _____ Yes ✓ No

If yes, provide the following for each land application site:

Location: _____

Number of acres: _____

Annual average daily volume applied to site: _____ Mgd

Is land application _____ continuous or _____ intermittent?

d. Does the treatment works discharge or transport treated or untreated wastewater to another treatment works? _____ Yes ✓ No

If yes, describe the mean(s) by which the wastewater from the treatment works is discharged or transported to the other treatment works (e.g., tank truck, pipe).

_____

If transport is by a party other than the applicant, provide:

Transporter name: _____

Mailing Address: _____

_____

Contact person: _____

Title: _____

Telephone number: _____

For each treatment works that receives this discharge, provide the following:

Name: _____

Mailing Address: _____

_____

Contact person: _____

Title: _____

Telephone number: _____

If known, provide the NPDES permit number of the treatment works that receives this discharge. _____

Provide the average daily flow rate from the treatment works into the receiving facility. _____ mgd

e. Does the treatment works discharge or dispose of its wastewater in a manner not included in A.8.a through A.8.d above (e.g., underground percolation, well injection)? _____ Yes ✓ No

If yes, provide the following for each disposal method:

Description of method (including location and size of site(s) if applicable):

_____

Annual daily volume disposed of by this method: _____

Is disposal through this method _____ continuous or _____ intermittent?

WASTEWATER DISCHARGES:

If you answered "yes" to question A.8.a, complete questions A.9 through A.12 **once for each outfall** (including bypass points) through which effluent is discharged. Do not include information on combined sewer overflows in this section. **If you answered "no" to question A.8.a**, go to Part B, "Additional Application Information for Applicants with a Design Flow Greater than or Equal to 0.1 mgd."

A.9. Description of Outfall.

a. Outfall number 001

b. Location
DAHLGREN (City or town, if applicable) 22845 (Zip Code)
KING GEORGE (County) VA (State)
38° 19' 23" N (Latitude) 77° 03' 10" W (Longitude)

c. Distance from shore (if applicable) 100 ft.

d. Depth below surface (if applicable) 2 ft.

e. Average daily flow rate 0.306 mgd

f. Does this outfall have either an intermittent or a periodic discharge? ____ Yes ✓ No (go to A.9.g.)

If yes, provide the following information:

Number of times per year discharge occurs: ____

Average duration of each discharge: ____

Average flow per discharge: ____ mgd

Months in which discharge occurs: ____

g. Is outfall equipped with a diffuser? ✓ Yes ____ No

A.10. Description of Receiving Waters.

a. Name of receiving water WILLIAMS CREEK

b. Name of watershed (if known) UPPER MACHODOC CREEK

United States Soil Conservation Service 14-digit watershed code (if known): ____

c. Name of State Management/River Basin (if known): Potomac River

United States Geological Survey 8-digit hydrologic cataloging unit code (if known): ____

d. Critical low flow of receiving stream (if applicable):
acute N/A cfs chronic N/A cfs

e. Total hardness of receiving stream at critical low flow (if applicable): ____ mg/l of $CaCO_3$

A.11. Description of Treatment.

a. What levels of treatment are provided? Check all that apply.

_____ Primary ✓ Secondary

✓ Advanced ✓ Other. Describe: Tertiary-Nutrient Removal, Filters, UV Disinfection

b. Indicate the following removal rates (as applicable):

Design BOD_5 removal or Design $CBOD_5$ removal	99	%
Design SS removal	98	%
Design P removal	96	%
Design N removal	91	%
Other TKN-N	95	%

c. What type of disinfection is used for the effluent from this outfall? If disinfection varies by season, please describe.

Ultraviolet Disinfection

If disinfection is by chlorination, is dechlorination used for this outfall? _____ Yes ✓ No

d. Does the treatment plant have post aeration? ✓ Yes _____ No

A.12. Effluent Testing Information. All Applicants that discharge to waters of the US must provide effluent testing data for the following parameters. Provide the indicated effluent testing required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least three samples and must be no more than four and one-half years apart.

Outfall number: 001

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	Value	Units	Value	Units	Number of Samples
pH (Minimum)	6.74	s.u.			
pH (Maximum)	8.79	s.u.			
Flow Rate	1.05	mgd	0.264	mgd	1275
Temperature (Winter)	20	°C	11.6	°C	540
Temperature (Summer)	30	°C	23.9	°C	613

* For pH please report a minimum and a maximum daily value

POLLUTANT		MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML / MDL
		Conc.	Units	Conc.	Units	Number of Samples		
CONVENTIONAL AND NONCONVENTIONAL COMPOUNDS.								
BIOCHEMICAL OXYGEN	BOD-5	--------	---------	---------	---------	---------	---------	---------
DEMAND (Report one)	CBOD-5	22.0	ppm	2.5	ppm	780	5210 (B)	2
FECAL COLIFORM		86	cfu/100mL	0.6	cfu/100mL	780	1600	2
TOTAL SUSPENDED SOLIDS (TSS)		52	ppm	7	ppm	780	2540 (D)	1.0

END OF PART A.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

BASIC APPLICATION INFORMATION

PART B. ADDITIONAL APPLICATION INFORMATION FOR APPLICANTS WITH A DESIGN FLOW GREATER THAN OR EQUAL TO 0.1 MGD (100,000 gallons per day).

All applicants with a design flow rate ≥ 0.1 mgd must answer questions B.1 through B.6. All others go to Part C (Certification).

B.1. Inflow and Infiltration. Estimate the average number of gallons per day that flow into the treatment works from inflow and/or infiltration.

N/A gpd

Briefly explain any steps underway or planned to minimize inflow and infiltration.

No significant Infiltration

B.2. Topographic Map. Attach to this application a topographic map of the area extending at least one mile beyond facility property boundaries. This map must show the outline of the facility and the following information. (You may submit more than one map if one map does not show the entire area.)

See Figure 1: DAHLGREN WASTEWATER TREATMENT PLANT VICINITY MAP

a. The area surrounding the treatment plant, including all unit processes.

b. The major pipes or other structures through which wastewater enters the treatment works and the pipes or other structures through which treated wastewater is discharged from the treatment plant. Include outfalls from bypass piping, if applicable.

c. Each well where wastewater from the treatment plant is injected underground.

d. Wells, springs, other surface water bodies, and drinking water wells that are: 1) within 1/4 mile of the property boundaries of the treatment works, and 2) listed in public record or otherwise known to the applicant.

e. Any areas where the sewage sludge produced by the treatment works is stored, treated, or disposed.

f. If the treatment works receives waste that is classified as hazardous under the Resource Conservation and Recovery Act (RCRA) by truck, rail, or special pipe, show on the map where that hazardous waste enters the treatment works and where it is treated, stored, and/or disposed.

B.3. Process Flow Diagram or Schematic. Provide a diagram showing the processes of the treatment plant, including all bypass piping and all backup power sources or redundancy in the system. Also provide a water balance showing all treatment units, including disinfection (e.g, chlorination and dechlorination). The water balance must show daily average flow rates at influent and discharge points and approximate daily flow rates between treatment units. Include a brief narrative description of the diagram.

See FIGURE 2" DAHLGREN WASTEWATER TREATMENT PLANT PROCESS FLOW DIAGRAM AND NARRATIVE

B.4. Operation/Maintenance Performed by Contractor(s).

Are any operational or maintenance aspects (related to wastewater treatment and effluent quality) of the treatment works the responsibility of a contractor? ____Yes ✓No

If yes, list the name, address, telephone number, and status of each contractor and describe the contractor's responsibilities (attach additional pages if necessary).

Name: _____

Mailing Address: _____

_____

Telephone Number: _____

Responsibilities of Contractor: _____

B.5. Scheduled Improvements and Schedules of Implementation. Provide information on any uncompleted implementation schedule or uncompleted plans for improvements that will affect the wastewater treatment, effluent quality, or design capacity of the treatment works. If the treatment works has several different implementation schedules or is planning several improvements, submit separate responses to question B.5 for each. (If none, go to question B.6.)

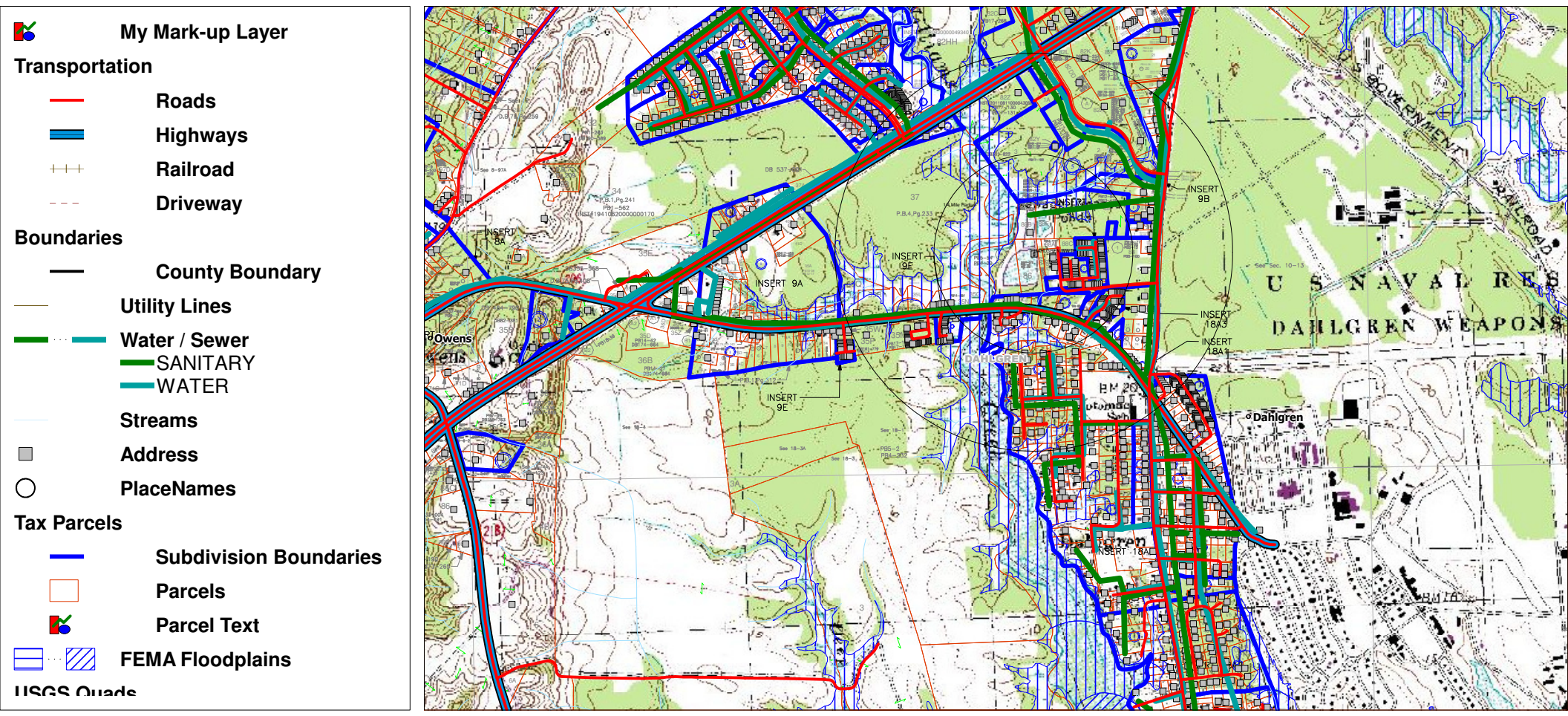
a. List the outfall number (assigned in question A.9) for each outfall that is covered by this implementation schedule.

001

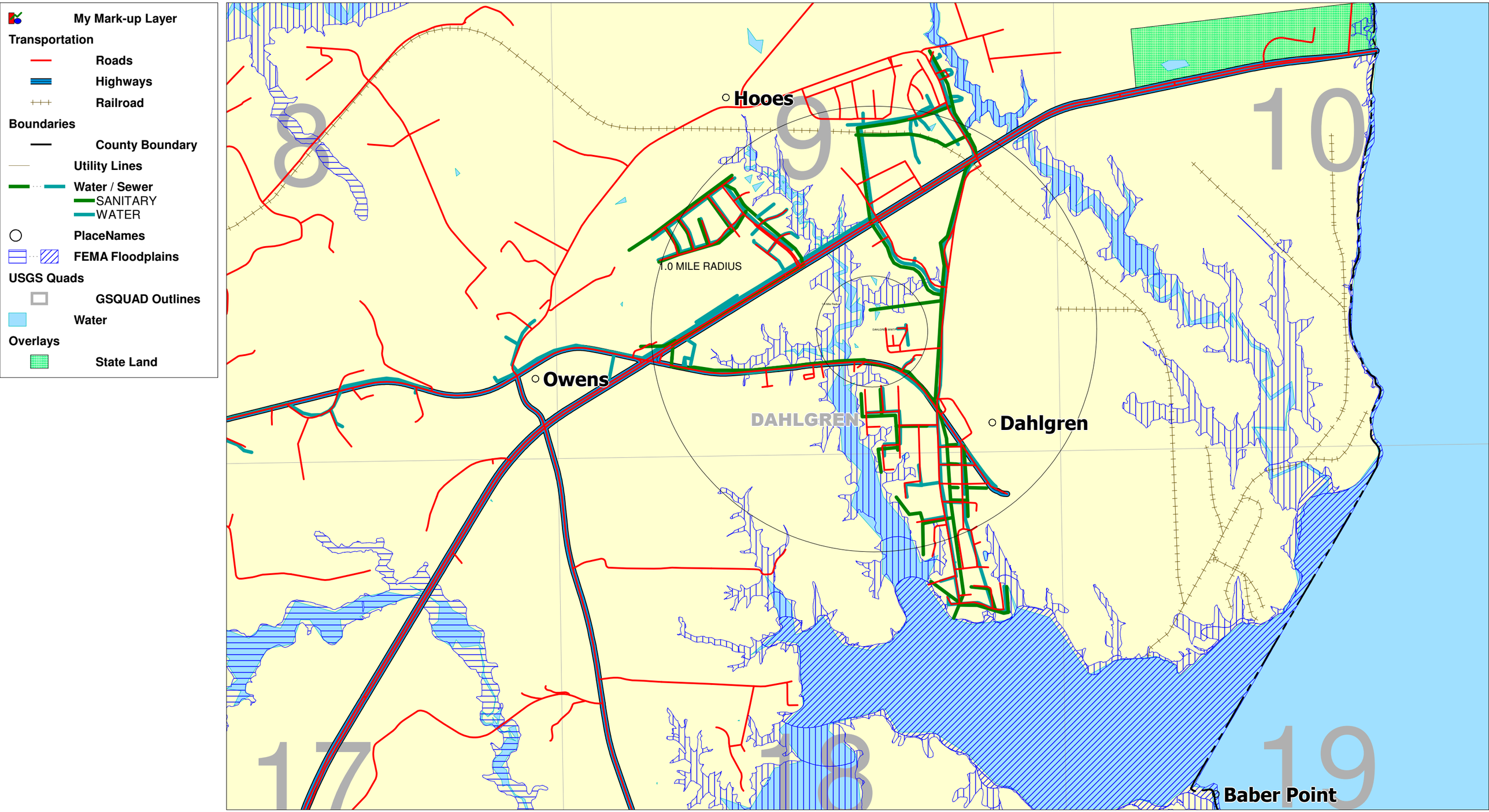
b. Indicate whether the planned improvements or implementation schedule are required by local, State, or Federal agencies.

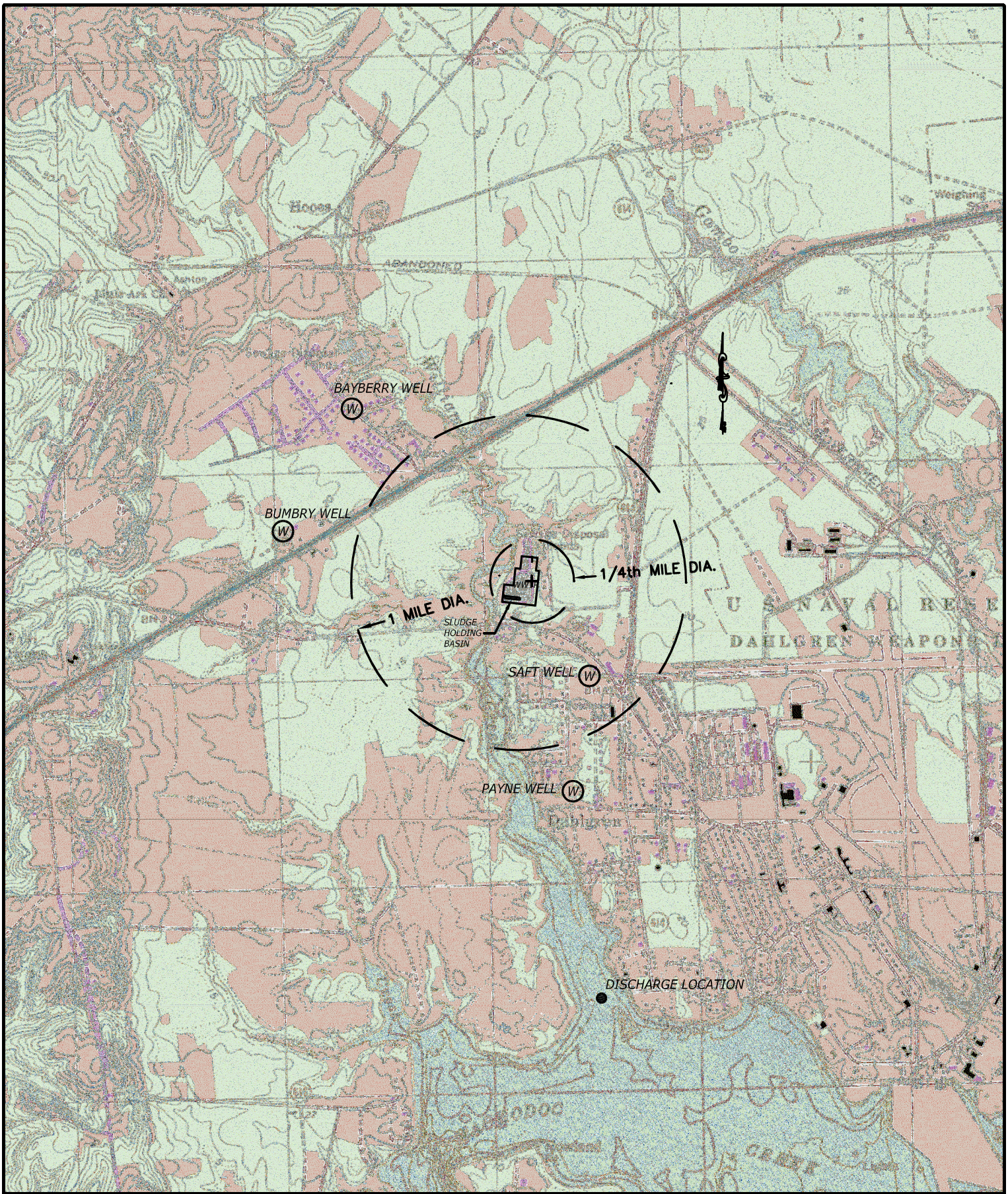
✓Yes ____No

onlineGIS.net by MSAG Data Consultants, Inc.



TOPOGRAPHIC MAP: DAHLGREN WASTEWATER TREATMENT PLANT

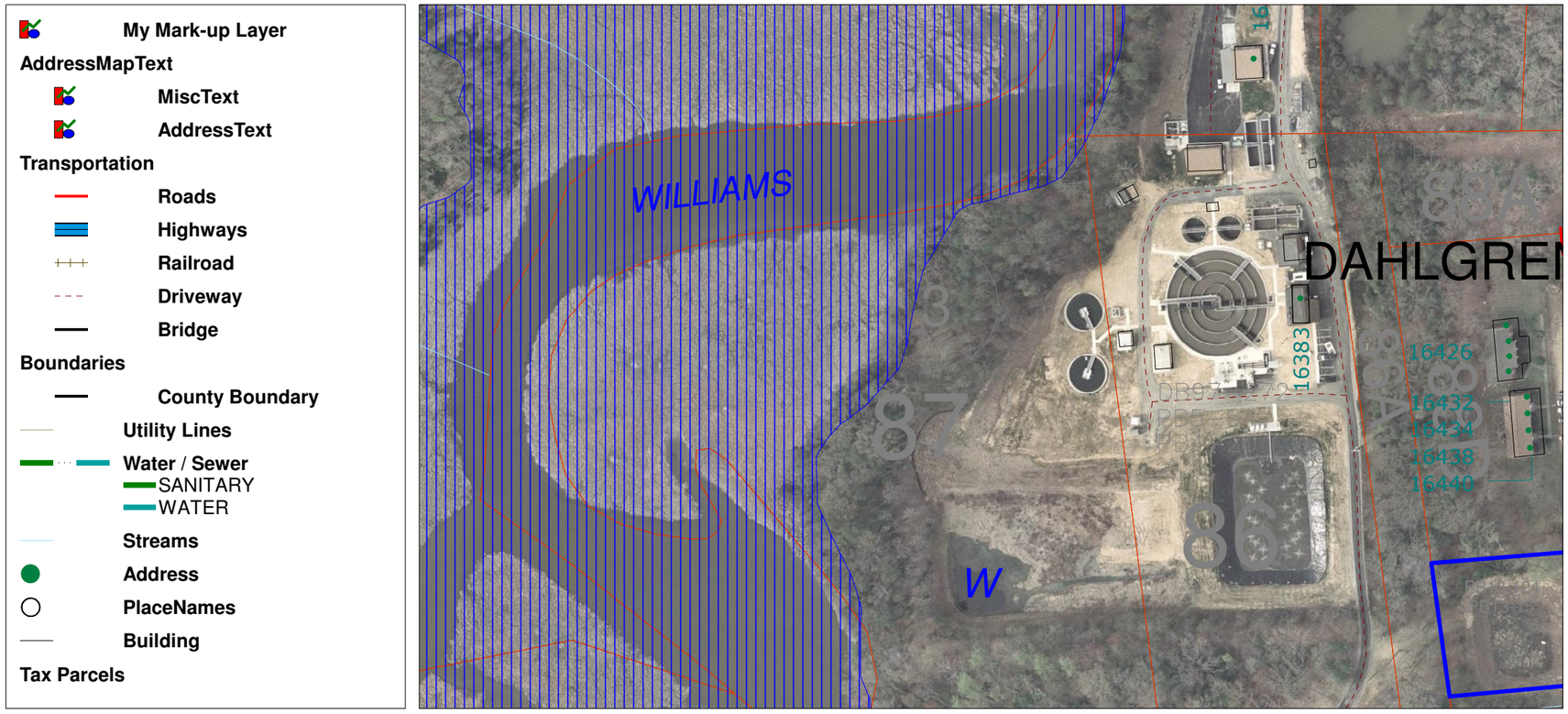




RETAW ENGINEERING
2903 SAGECREEK CIRCLE
MIDLOTHIAN, VA 23112
Phone: (804) 744-1792 | Fax: (804) 545-9075

JOB NO.	DAHLGREN WWTP VPDES PERMIT	SCALE	DATE	DATE
24436	KING GEORGE, VA	1" = 1100'	DATE	07/15/2013
SHEET NO.	TOPOGRAPHIC MAP	CHECKED BY	DRAWN BY	DESIGNED BY
F		IM	MCP	MCP

DAHLGREN WWTP Site Plan (IMAGERY)



CHEMICAL INVENTORY

Below is a list of chemicals used at the Dahlgren Wastewater Treatment Plant and estimated quantities stored at the facility. Actual quantities will depend on when an order was made and the usage rate at that particular time.

CHEMICAL	**USE**	**ESTIMATED QUANTITIES**
Alum (Dry)	Phosphorus removal to meet effluent limit	60 x 50 lb Bags
Molasses (Plant switch to BiocarbND 80)	Currently facility is using Molasses but is in the process of switching to BiocarbND 80 due to its higher COD value of approximate 1,200,000 mg/L compared to molasses COD value of approximately 690,000 mg/L. Supplement cBOD5 to Enhance denitrification and overall nitrogen removal to meet limit of 4.0 mg/L	3,500 Gallons
Soda Ash	Supplement Alkalinity for enhanced Nitrogen removal and pH control, on as needed basis	30 x 50 lb Bags

c If the answer to B.5.b is "Yes," briefly describe, including new maximum daily inflow rate (if applicable).

_____

d. Provide dates imposed by any compliance schedule or any actual dates of completion for the implementation steps listed below, as applicable. For improvements planned independently of local, State, or Federal agencies, indicate planned or actual completion dates, as applicable. Indicate dates as accurately as possible.

Implementation Stage	Schedule MM / DD / YYYY	Actual Completion MM / DD / YYYY
– Begin construction	11 / 30 / 2013	___/ ___/ _____
– End construction	9 / 29 / 2014	___/ ___/ _____
– Begin discharge	10 / 01 / 2014	___/ ___/ _____
– Attain operational level	01 / 01 / 2015	___/ ___/ _____

e. Have appropriate permits/clearances concerning other Federal/State requirements been obtained? ___Yes ✔No

Describe briefly: Plans and Specifications currently under DEQ Review.
Certificate to Construct anticipated Aug 09, 2013 (tentative)

B.6. EFFLUENT TESTING DATA (GREATER THAN O.1 MGD ONLY).

Applicants that discharge to waters of the US must provide effluent testing data for the following parameters. Provide the indicated effluent testing required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least three pollutant scans and must be no more than four and one-half years old.

Outfall Number: 001

POLLUTANT	MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML / MDL
	Conc.	Units	Conc.	Units	Number of Samples		
CONVENTIONAL AND NONCONVENTIONAL COMPOUNDS.							
AMMONIA (as N)	2.8	mg/L	0.21	mg/L	156	4500-NH3 F	0.1
CHLORINE (TOTAL RESIDUAL, TRC)	NotRequired						
DISSOLVED OXYGEN	15.7	mg/L	9.6	mg/L	1092	4500-G	0.1
TOTAL KJELDAHL NITROGEN (TKN)	33.6	mg/L	5.8	mg/L	48	4500-NH3F	0.1
NITRATE PLUS NITRITE NITROGEN	9.55	mg/L	4.0	mg/L	156	300.0/4500-NO2-	B 0.1 & 0.01
OIL and GREASE	PENDING	mg/L	PENDING	mg/L	******	5520	5
PHOSPHORUS (Total)	0.92	mg/L	0.29	mg/L	780	4500-P-E	0.01
TOTAL DISSOLVED SOLIDS (TDS)	PENDING	mg/L	PENDING	mg/L	*******	2540 C	1
OTHER (T. Hardness)	85	mg/L	32	mg/L	52	2340C	2

END OF PART B.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

FACILITY NAME AND PERMIT NUMBER:
DHALGREN WASTEWATER TREATMENT PLANT, VA0026514

Form Approved 1/14/99
OMB Number 2040-0086

BASIC APPLICATION INFORMATION

PART C. CERTIFICATION

All applicants must complete the Certification Section. Refer to instructions to determine who is an officer for the purposes of this certification. All applicants must complete all applicable sections of Form 2A, as explained in the Application Overview. Indicate below which parts of Form 2A you have completed and are submitting. By signing this certification statement, applicants confirm that they have reviewed Form 2A and have completed all sections that apply to the facility for which this application is submitted.

Indicate which parts of Form 2A you have completed and are submitting:

✓ Basic Application Information packet

Supplemental Application Information packet:

✓ Part D (Expanded Effluent Testing Data)

✓ Part E (Toxicity Testing: Biomonitoring Data)

____ Part F (Industrial User Discharges and RCRA/CERCLA Wastes)

____ Part G (Combined Sewer Systems)

ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and official title: Christopher F. Thomas PE, General Manager

Signature: Christopher F. Thomas

Telephone number: (540) 775-2746

Date signed: July 12, 2013

Upon request of the permitting authority, you must submit any other information necessary to assess wastewater treatment practices at the treatment works or identify appropriate permitting requirements.

SEND COMPLETED FORMS TO:

Joan C. Crowther
VPDES Permit Writer
Virginia Department of Environmental Quality
Northern Regional Office
13901 Crown Court
Woodbridge, VA 22193
Phone: (703) 583-3925
Email address: joan.crowther@deq.virginia.gov

FACILITY NAME AND PERMIT NUMBER:
DHALGREN WASTEWATER TREATMENT PLANT, VA0026514

Form Approved 1/14/99
OMB Number 2040-0086

BASIC APPLICATION INFORMATION

PART C. CERTIFICATION

All applicants must complete the Certification Section. Refer to instructions to determine who is an officer for the purposes of this certification. All applicants must complete all applicable sections of Form 2A, as explained in the Application Overview. Indicate below which parts of Form 2A you have completed and are submitting. By signing this certification statement, applicants confirm that they have reviewed Form 2A and have completed all sections that apply to the facility for which this application is submitted.

Indicate which parts of Form 2A you have completed and are submitting:

✓ Basic Application Information packet

Supplemental Application Information packet:

✓ Part D (Expanded Effluent Testing Data)

✓ Part E (Toxicity Testing: Biomonitoring Data)

_____ Part F (Industrial User Discharges and RCRA/CERCLA Wastes)

_____ Part G (Combined Sewer Systems)

ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and official title: Christopher F. Thomas PE, General Manager

Signature: Christopher F. Thomas

Telephone number: (540) 775-2746

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Upon request of the permitting authority, you must submit any other information necessary to assess wastewater treatment practices at the treatment works or identify appropriate permitting requirements.

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Northern Regional Office
13901 Crown Court
Woodbridge, VA 22193
Phone: (703) 583-3925
Email address: joan.crowther@deq.virginia.gov

SUPPLEMENTAL APPLICATION INFORMATION

PART D. EXPANDED EFFLUENT TESTING DATA

Refer to the directions on the cover page to determine whether this section applies to the treatment works.

Effluent Testing: 1.0 mgd and Pretreatment Treatment Works. If the treatment works has a design flow greater than or equal to 1.0 mgd or it has (or is required to have) a pretreatment program, or is otherwise required by the permitting authority to provide the data, then provide effluent testing data for the following pollutants. Provide the indicated effluent testing information and any other information required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analyses conducted using 40 CFR Part 136 methods. In addition, these data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. Indicate in the blank rows provided below any data you may have on pollutants not specifically listed in this form. At a minimum, effluent testing data must be based on at least three pollutant scans and must be no more than four and one-half years old.

See Attachment A - LAB DATA: EPANDED EFFLUENT TEST RESULTS

Outfall number: 001 (Complete once for each outfall discharging effluent to waters of the United States.)

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/ MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
METALS (TOTAL RECOVERABLE), CYANIDE, PHENOLS, AND HARDNESS.											
ANTIMONY											
ARSENIC											
BERYLLIUM											
CADMIUM											
CHROMIUM											
COPPER											
LEAD											
MERCURY											
NICKEL											
SELENIUM											
SILVER											
THALLIUM											
ZINC											
CYANIDE											
TOTAL PHENOLIC COMPOUNDS											
HARDNESS (AS $CaCO_3$)											
Use this space (or a separate sheet) to provide information on other metals requested by the permit writer.											

Ignatius Mutoti

From: Ignatius Mutoti [ignatius.mutoti@retaweng.com]
Sent: Thursday, July 18, 2013 12:45 PM
To: 'Crowther, Joan (DEQ)'
Cc: 'Chris Thomas'; 'Jeff Hockaday'
Subject: RE: Dahlgren VPDES Permit Application (2013) https://app.box.com/s/zybh4ppuv2yvg2o2jenz

Ms. Joan
KGCSA is collecting samples for Test Results required by EPA form 3510-2A Part B: Expanded Effluent Testing for Plants that are 1.0 MGD or greater. The current average flow rate for the Dahlgren WWTP is 0.272 MGD and the current permit application is also requesting a permit modification to eliminate the 1.0 MGD design capacity and replace it with a 0.97 MGD design capacity due to the proposed upgrades which reduce the plant's hydraulic capacity in order to gain treatment efficiency from BNR to ENR (TN of 4.0 mg/L).

Due to these two factors, we would like to request that requirements of Part D Expanded effluent be waived, or the required three scans be reduced?

Thank you

Ignatius Mutoti PhD, PE, Class II Operator

Retaw Engineering
A GLOBAL WATER PRACTICE

P. O. Box 5881
Midlothian, VA 23112

Phone:804.744.1792 | Cell:804.245.2979

From: Crowther, Joan (DEQ) [mailto:Joan.Crowther@deq.virginia.gov]
Sent: Thursday, July 18, 2013 10:18 AM
To: Ignatius Mutoti
Subject: RE: Dahlgren VPDES Permit Application (2013) https://app.box.com/s/zybh4ppuv2yvg2o2jenz

I got it..Thanks

From: Ignatius Mutoti [mailto:ignatius.mutoti@retaweng.com]
Sent: Thursday, July 18, 2013 10:15 AM
To: Crowther, Joan (DEQ)
Subject: Dahlgren VPDES Permit Application (2013) https://app.box.com/s/zybh4ppuv2yvg2o2jenz

Joan –
I sent you a link. You can also try clicking on https://app.box.com/s/zybh4ppuv2yvg2o2jenz

FACILITY NAME AND PERMIT NUMBER:
DAHLGREN WASTEWATER TREATMENT PLANT VA0026514

Form Approved 1/14/99
OMB Number 2040-0086

Outfall number: _____ (Complete once for each outfall discharging effluent to waters of the United States.)

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/ MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
VOLATILE ORGANIC COMPOUNDS.											
ACROLEIN											
ACRYLONITRILE											
BENZENE											
BROMOFORM											
CARBON TETRACHLORIDE											
CLOROBENZENE											
CHLORODIBROMO-METHANE											
CHLOROETHANE											
2-CHLORO-ETHYLVINYL ETHER											
CHLOROFORM											
DICHLOROBROMO-METHANE											
1,1-DICHLOROETHANE											
1,2-DICHLOROETHANE											
TRANS-1,2-DICHLORO-ETHYLENE											
1,1-DICHLOROETHYLENE											
1,2-DICHLOROPROPANE											
1,3-DICHLORO-PROPYLENE											
ETHYLBENZENE											
METHYL BROMIDE											
METHYL CHLORIDE											
METHYLENE CHLORIDE											
1,1,2,2-TETRACHLORO-ETHANE											
TETRACHLORO-ETHYLENE											
TOLUENE											

Outfall number: _____ (Complete once for each outfall discharging effluent to waters of the United States.)

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/ MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
1,1,1-TRICHLOROETHANE											
1,1,2-TRICHLOROETHANE											
TRICHLORETHYLENE											
VINYL CHLORIDE											
Use this space (or a separate sheet) to provide information on other volatile organic compounds requested by the permit writer.											
ACID-EXTRACTABLE COMPOUNDS											
P-CHLORO-M-CRESOL											
2-CHLOROPHENOL											
2,4-DICHLOROPHENOL											
2,4-DIMETHYLPHENOL											
4,6-DINITRO-O-CRESOL											
2,4-DINITROPHENOL											
2-NITROPHENOL											
4-NITROPHENOL											
PENTACHLOROPHENOL											
PHENOL											
2,4,6-TRICHLOROPHENOL											
Use this space (or a separate sheet) to provide information on other acid-extractable compounds requested by the permit writer.											
BASE-NEUTRAL COMPOUNDS.											
ACENAPHTHENE											
ACENAPHTHYLENE											
ANTHRACENE											
BENZIDINE											
BENZO(A)ANTHRACENE											
BENZO(A)PYRENE											

FACILITY NAME AND PERMIT NUMBER:
DAHLGREN WASTEWATER TREATMENT PLANT VA0026514

Form Approved 1/14/99
OMB Number 2040-0086

Outfall number: _____ (Complete once for each outfall discharging effluent to waters of the United States.)

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/ MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
3,4 BENZO-FLUORANTHENE											
BENZO(GHI)PERYLENE											
BENZO(K)FLUORANTHENE											
BIS (2-CHLOROETHOXY) METHANE											
BIS (2-CHLOROETHYL)-ETHER											
BIS (2-CHLOROISO-PROPYL) ETHER											
BIS (2-ETHYLHEXYL) PHTHALATE											
4-BROMOPHENYL PHENYL ETHER											
BUTYL BENZYL PHTHALATE											
2-CHLORONAPHTHALENE											
4-CHLORPHENYL PHENYL ETHER											
CHRYSENE											
DI-N-BUTYL PHTHALATE											
DI-N-OCTYL PHTHALATE											
DIBENZO(A,H) ANTHRACENE											
1,2-DICHLOROBENZENE											
1,3-DICHLOROBENZENE											
1,4-DICHLOROBENZENE											
3,3-DICHLOROBENZIDINE											
DIETHYL PHTHALATE											
DIMETHYL PHTHALATE											
2,4-DINITROTOLUENE											
2,6-DINITROTOLUENE											
1,2-DIPHENYLHYDRAZINE											

FACILITY NAME AND PERMIT NUMBER:
DAHLGREN WASTEWATER TREATMENT PLANT VA0026514

Form Approved 1/14/99
OMB Number 2040-0086

Outfall number: _____ (Complete once for each outfall discharging effluent to waters of the United States.)

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/ MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
FLUORANTHENE											
FLUORENE											
HEXACHLOROBENZENE											
HEXACHLOROBUTADIENE											
HEXACHLOROCYCLO-PENTADIENE											
HEXACHLOROETHANE											
INDENO(1,2,3-CD)PYRENE											
ISOPHORONE											
NAPHTHALENE											
NITROBENZENE											
N-NITROSODI-N-PROPYLAMINE											
N-NITROSODI- METHYLAMINE											
N-NITROSODI-PHENYLAMINE											
PHENANTHRENE											
PYRENE											
1,2,4-TRICHLOROBENZENE											
Use this space (or a separate sheet) to provide information on other base-neutral compounds requested by the permit writer.											
Use this space (or a separate sheet) to provide information on other pollutants (e.g., pesticides) requested by the permit writer.											

END OF PART D.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

SUPPLEMENTAL APPLICATION INFORMATION

PART E. TOXICITY TESTING DATA

POTWs meeting one or more of the following criteria must provide the results of whole effluent toxicity tests for acute or chronic toxicity for each of the facility's discharge points: 1) POTWs with a design flow rate greater than or equal to 1.0 mgd; 2) POTWs with a pretreatment program (or those that are required to have one under 40 CFR Part 403); or 3) POTWs required by the permitting authority to submit data for these parameters.

- At a minimum, these results must include quarterly testing for a 12-month period within the past 1 year using multiple species (minimum of two species), or the results from four tests performed at least annually in the four and one-half years prior to the application, provided the results show no appreciable toxicity, and testing for acute and/or chronic toxicity, depending on the range of receiving water dilution. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136.
- In addition, submit the results of any other whole effluent toxicity tests from the past four and one-half years. If a whole effluent toxicity test conducted during the past four and one-half years revealed toxicity, provide any information on the cause of the toxicity or any results of a toxicity reduction evaluation, if one was conducted.
- If you have already submitted any of the information requested in Part E, you need not submit it again. Rather, provide the information requested in question E.4 for previously submitted information. If EPA methods were not used, report the reasons for using alternate methods. If test summaries are available that contain all of the information requested below, they may be submitted in place of Part E.

If no biomonitoring data is required, do not complete Part E. Refer to the Application Overview for directions on which other sections of the form to complete.

E.1. Required Tests.

Indicate the number of whole effluent toxicity tests conducted in the past four and one-half years.

____chronic ____acute

E.2. Individual Test Data. Complete the following chart for each whole effluent toxicity test conducted in the last four and one-half years. Allow one column per test (where each species constitutes a test). Copy this page if more than three tests are being reported.

	Test number:_____	Test number:_____	Test number:_____
a. Test information.			
Test species & test method number			
Age at initiation of test			
Outfall number			
Dates sample collected			
Date test started			
Duration			
b. Give toxicity test methods followed.			
Manual title			
Edition number and year of publication			
Page number(s)			
c. Give the sample collection method(s) used. For multiple grab samples, indicate the number of grab samples used.			
24-Hour composite			
Grab			
d. Indicate where the sample was taken in relation to disinfection. (Check all that apply for each)			
Before disinfection			
After disinfection			
After dechlorination			

James R. Reed & Associates

Environmental Testing

770 Pilot House Drive • Newport News, Virginia 23606
(757) 873-4703 • Fax 873-1498

Memorandum

Date: May 25, 2012

To: Jeff Hockaday, King George County

From: Lei Dong, Reed and Associates

Re: Toxicity testing for outfall 001

Attached is the bioassay report for outfall 001. The result passed the requirement of your permit for:

Chronic *A.bahia* Toxicity Test:	**NOEC=4% effluent (TUc=25)**
Chronic *C.variegatus* Toxicity Test:	**NOEC=100% effluent (TUc=1)**

If you have any questions and comments, please call me.

May 25, 2012

DAHLGREN WWTP

Sample ID: 001
NPDES#: VA0026514
JRA ID: 12-07496

Chronic *Americamysis bahia* Survival, Growth and Fecundity Test
Chronic *Cyprinodon variegatus* Survival and Growth Test

Performed for:

Jeff Hockaday
King George County
10459 Courthouse Drive, Suite 201
King George, VA 22485

Performed by:

James R. Reed & Associates
770 Pilot House Drive
Newport News, VA 23606

Respectfully,

Elaine Claiborne

Elaine Claiborne
Laboratory Director

The results of this report relate only to the sample(s) provided for analysis. *VELAP# 460013*
Results conform to NELAC standards, where applicable, unless otherwise indicated. *EPA# VA00015*

TEST SUMMARY SHEET
(For Marine and Freshwater Tests)
Test Method: EPA 1007.0

Facility: KGSA-DAHLGREN WASTEWATER PLANT NPDES Permit #: VA0026514

Outfall/Receiving Stream: Outfall 001 JRA #: 12-07496

Test Period for Which Data is Being Submitted: Annual test
(i.e., first quarter, semiannual, or annual)

SUMMARY OF TEST CONDITIONS

	Date	Time
Test Start:	5/15/2012	1125
Test End:	5/22/2012	1120

Test Type (chronic/acute): Chronic

Test Organism: *Americamysis bahia** Age: 7 days
Old name: *Mysidopsis bahia*
Test Chamber Size: 250 mL

Volume of Test Solution per Chamber: 150 mL

Diluent: 20ppt Forty Fathoms

Aeration Period (if necessary): None
Test Photoperiod: 16 hours light / 8 hours dark (50-100 ft-c)

RANGE OF CHEMICAL PARAMETERS

Parameter		Effluent	Diluent
1. Chlorine (mg/L)	Initial	<0.02	<0.02
	Adjusted	N/A	
2. Salinity (ppt)	Initial	<1	20-21
	Adjusted	20	
3. pH	Initial	8.10-8.22	7.60-8.43
	Adjusted	N/A	

JRA #: 12-07496 Test Type&Organism: Chronic *Americamysis bahia*

RANGE OF CHEMICAL PARAMETERS (Continued):

Parameter	Effluent	Diluent
4. Alkalinity (mg/L as $CaCO_3$)	94-106 (w/initial salinity)	N/A
5. Nitrite (mg/L)	0.2	<0.2
6. Ammonia (mg/L)	0.8	0.8
7. Hardness (mg/L as $CaCO_3$)	32-36 (w/initial salinity)	N/A
8. Conductivity (µmhos/cm)	N/A	N/A
9. DO (mg/L)	5.9-7.3	5.8-7.2

10. Methods Used for Adjustment of Test Solutions

Chlorine	N/A
Salinity	Forty Fathoms
pH	N/A

TEST RESULTS

1. Test Acceptability

Control Survival (%)	100%
Average Weight per Control Organism (mg)	0.305
Average Number of Young per Control (*C. dubia*)	N/A
60% of Control Females (*C. dubia*) with 3 Broods?	N/A
Total Number of Male *C. dubia* in the Test	N/A
Known Parentage? N/A	
Percent Females Producing Eggs (*M. bahia*)	0%

2. Method(s) of Statistical Analyses

Survival:	Steel's Many-One Rank Test
Growth:	Dunnett's Test
IC25:	Linear Interpolation
LC50 (at 48 hours):	Visual observation

JRA #: 12-07496 Test Type&Organism: 'Chronic *Americamysis bahia*

TEST RESULTS (Continued)

3. Statistical Results (as appropriate)

LC50 (at 48 hours):		>100%			
TUa		<1			
IC25		52.1%			
Survival	(NOEC)	46%	(LOEC)	100%	
	Normal Distribution (yes/no)	no			
	Homogeneous Variance (yes/no)	N/A			
Fecundity	(NOEC)	N/A	(LOEC)	N/A	
	Normal Distribution (yes/no)	N/A			
	Homogeneous Variance (yes/no)	N/A			
Growth	(NOEC)	4%	(LOEC)	10%	
	Normal Distribution (yes/no)	yes			
	Homogeneous Variance (yes/no)	yes			
PMSD		12.4%			
TUc		25			
Reference Toxicant Test Date		5/15/2012			
	ID No.	M1098			
	Result (mg/L)	10			
	QC Range (mg/L)	2.5	thru	10	

4. Equipment	(Make	Model	Serial #	Probe #)
pH meter	VWR	SB21	00005173	F1
DO meter	YSI	5000	97JO177	N
SCT meter	Orion	3 Star	000642	A1
Temperature	VWR	digi-thermo	N/A	N/A
Chlorine	HACH	Colorimeter™II	00000994	N/A

5. Protocol Deviations/Comments

Fecundity was not used as a criterion of effect due to less than 50% egg production in control females.

EFFLUENT USE SHEET
(CHRONIC RENEWALS)

Facility: KGSA-DAHLGREN WASTEWATER PLANT VPDES Permit #: VA0026514

Outfall/Receiving Stream: Outfall 001 JRA #: 12-07496

Test/Organism: 'Chronic *Americamysis bahia*

SAMPLE COLLECTION						
Date(s)		Time(s)		SAMPLE USE		
From:	To:	From:	To:	Date(s)	Time(s)	Test Day
5/14/2012	5/15/2012	0600	0600	5/15/2012	1125	0
				5/16/2012	0925	1
				5/17/2012	0945	2
5/16/2012	5/17/2012	0600	0600	5/18/2012	0940	3
				5/19/2012	0945	4
5/18/2012	5/19/2012	0600	0600	5/20/2012	0940	5
				5/21/2012	1000	6

The first use of a sample must be within 36-hours of retrieval from the sample collection device.
Last use of sample must be within 72 hours of first use.

TEST SUMMARY SHEET
(For Marine and Freshwater Tests)
Test Method: EPA 1004.0

Facility: KGSA-DAHLGREN WASTEWATER PLANT NPDES Permit #: VA0026514

Outfall/Receiving Stream: Outfall 001 JRA #: 12-07496

Test Period for Which Data is Being Submitted: Annual test
(i.e., first quarter, semiannual, or annual)

SUMMARY OF TEST CONDITIONS

	Date	Time
Test Start:	5/16/2012	0950
Test End:	5/23/2012	0915

Test Type (chronic/acute): Chronic

Test Organism: *Cyprinodon variegatus* Age: 24-48 hours

Test Chamber Size: 500 mL

Volume of Test Solution per Chamber: 250 mL

Diluent: 20ppt Forty Fathoms

Aeration Period (if necessary): none
Test Photoperiod: 16 hours light / 8 hours dark (50-100 ft-c)

RANGE OF CHEMICAL PARAMETERS

Parameter		Effluent	Diluent
1. Chlorine (mg/L)	Initial	<0.02	<0.02
	Adjusted	N/A	
2. Salinity (ppt)	Initial	<1	20-21
	Adjusted	20	
3. pH	Initial	7.83-8.17	7.30-8.43
	Adjusted	N/A	

JRA #: 12-07496 Test Type&Organism: Chronic *Cyprinodon variegatus*

RANGE OF CHEMICAL PARAMETERS (Continued):

Parameter	Effluent	Diluent
4. Alkalinity (mg/L as $CaCO_3$)	94-106(w/initial salinity)	N/A
5. Ammonia (mg/L)	N/A	N/A
6. Hardness (mg/L as $CaCO_3$)	32-36 (w/initial salinity)	N/A
7. Conductivity (µmhos/cm)	N/A	N/A
8. DO (mg/L)	5.3-7.3	5.7-7.2

9. Methods Used for Adjustment of Test Solutions

Chlorine	N/A
Salinity	Forty Fathoms
pH	N/A

TEST RESULTS

1. Test Acceptability

Control Survival (%)	100%
Average Weight per Control Organism (mg)	1.612
Average Number of Young per Control (*C. dubia*)	N/A
60% of Control Females (*C. dubia*) with 3 Broods?	N/A
Total Number of Male *C. dubia* in the Test	N/A
Known Parentage?	N/A
Percent Females Producing Eggs (*M. bahia*)	N/A

2. Method(s) of Statistical Analyses

Survival:	Steel's Many-One Rank Test
Growth:	Dunnett's Test
IC25:	Linear Interpolation
LC50 (at 48 hours):	Visual observation

JRA #: 12-07496 Test Type&Organism: Chronic *Cyprinodon variegatus*

TEST RESULTS (Continued)

3. Statistical Results (as appropriate)

LC50 (at 48 hours):		>100%		
TUa		<1		
IC25		>100%		
Survival	(NOEC)	100%	(LOEC)	>100%
Normal Distribution (yes/no)		no		
Homogeneous Variance (yes/no)		n/a		
Growth	(NOEC)	100%	(LOEC)	>100%
Normal Distribution (yes/no)		yes		
Homogeneous Variance (yes/no)		yes		
PMSD		8.12%		
TUc		1		
Reference Toxicant Test Date		5/16/2012		
ID No.		C511		
Result (mg/L)		2.0		
QC Range (mg/L)		0.5	thru	2.0

4. Equipment	(Make	Model	Serial #	Probe #)
pH meter	VWR	SB21	00005173	F1
DO meter	YSI	5000	97JO177	N
SCT meter	Orion	3 Star	000642	A1
Temperature	VWR	digi-thermo	N/A	N/A
Chlorine	HACH	Colorimeter™II	00000994	N/A

5. Protocol Deviations/Comments

Chronic Cyprinodon variegatus test was set up on 5/16/12@0950 due to FedEx delivery error.
The test was still initiated within 36 hours of sample holding time.

EFFLUENT USE SHEET
(CHRONIC RENEWALS)

Facility: 'KGSA-DAHLGREN WASTEWATER PLANT VPDES Permit #: VA0026514

Outfall/Receiving Stream: Outfall 001 JRA #: 12-07496

Test/Organism: Chronic *Cyprindon variegatus*

SAMPLE COLLECTION						
Date(s)		Time(s)		SAMPLE USE		
From:	To:	From:	To:	Date(s)	Time(s)	Test Day
5/14/2012	5/15/2012	0600	0600	5/16/2012	0950	0
				5/17/2012	0920	1
5/16/2012	5/17/2012	0600	0600	5/18/2012	0915	2
				5/19/2012	0920	3
5/18/2012	5/19/2012	0600	0600	5/20/2012	0920	4
				5/21/2012	0930	5
				5/22/2012	1000	6

The first use of a sample must be within 36-hours of retrieval from the sample collection device.
Last use of sample must be within 72 hours of first use.

CUMULATIVE DATA SUMMARY

KGSA-DAHLGREN WASTEWATER PLANT

NPDES: VA0026514

Outfall 001

Date of Test	Invertebrate LC50 %	Vertebrate LC50 %	Invertebrate NOEC % *A.bahia*		Vertebrate NOEC % *C.variegatus*	
2/24/2009			46%	TUc=2.17	100%	TUc=1
6/22/2009			4%	TUc=25	100%	TUc=1
9/21/2009			100%	TUc=1	100%	TUc=1
11/30/2009			46%	TUc=2.17	21%	TUc=4.76
3/9/2010			46%	TUc=2.17	100%	TUc=1
6/22/2010			21%	TUc=4.76	100%	TUc=1
9/28/2010			46%	TUc=2.17	100%	TUc=1
11/16/2010			46%	TUc=2.17	100%	TUc=1
4/19/2011			46%	TUc=2.17	100%	TUc=1
5/16/2012			4%	TUc=25	100%	TUc=1

Chronic *Americamysis bahia* Survival, Growth and Fecundity Test JRA# 12-07496

WATER QUALITY

NPDES#: VA0026514 CLIENT: King George County OUTFALL: 001

SAMPLE (PRIOR TO RENEWALS)

DATE	DAY	COLLECTION DATE/TIME	ARRIVAL DATE	TEMP (°C)	INIT pH	FINAL pH	INIT DO (mg/L)	FINAL DO (mg/L)	INIT SAL (ppt)	FINAL SAL (ppt)	INIT TRC (mg/L)	FINAL TRC (mg/L)
5/15/12	0	5/14/12 6:00 5/15/12 6:00	5/15/12	25.2	7.85	8.12	10.4	7.3	<1	20	<0.02	—
5/16/12	1	"	"	25.4	7.84	8.17	10.5	7.2	<1	20	<0.02	—
5/17/12	2	"	"	25.5	7.82	8.16	10.8	7.2	<1	20	<0.02	—
5/18/12	3	5/16/12 600 5/17/12 600	5/17/12	25.2	7.73	8.17	9.7	7.3	21	20	<0.02	—
5/19/12	4	"	"	25.2	7.73	8.17	10.6	7.3	<1	20	<0.02	—
5/20/12	5	5/18/12 600 5/19/12 600	5/19/12	25.3	7.70	8.16	9.9	7.2	<1	20	<0.02	—
5/21/12	6	"	"	25.4	7.66	8.14	10.7	7.3	<1	20	<0.02	—

DO Adjustments

Date	5/15/12	5/16/12	5/17/12	5/18/12	5/19/12	5/20/12	5/21/12
Method	Aerate	Aerate	Aerate	Aerate	Aerate	Aerate	Aerate
Minutes	15+10=25	15	20	20	20	20	20

pH Adjustments

Date							
Method							
Amount							

TRC Adjustments

Date							
Method							
Amount							

DILUENT: (Forty Fathoms) Hawaiian Marine Mix Other_____) CIRCLE ONE

DATE	DAY	DATE MADE	TEMP (°C)	pH	DO (mg/L)	SAL (ppt)	TRC (mg/L)
5/15/12	0	5/14/12	25.3	8.43	6.7	20	<0.02
5/16/12	1	5/15/12	25.4	8.21	6.8	21	<0.02
5/17/12	2	5/16/12	25.2	8.35	6.7	21	<0.02
5/18/12	3	5/17/12	25.2	8.38	7.2	20	<0.02
5/19/12	4	5/18/12	25.4	8.36	6.8	20	<0.02
5/20/12	5	5/18/12	25.6	8.33	6.6	20	<0.02
5/21/12	6	5/19/12	25.7	8.31	6.7	20	<0.02

Chronic *Americamysis bahia* Survival, Growth and Fecundity Test JRA# 12-07496

GENERAL COMMENTS

NPDES#: VA0026514 CLIENT: King George County OUTFALL: 001

SAMPLE (or highest surviving concentration)			CONTROL		FEEDINGS (TIME/INIT)	
TEST DAY	NITRITE (mg/L) END Solutions	AMMONIA (mg/L) END Solutions	NITRITE (mg/L) END Solutions	AMMONIA (mg/L) END Solutions	AM	PM
0	N/A	N/A	N/A	N/A		5/15/12 1215 KM
1	0.2	0.8	<0.2	0.8	5/16/12 735 KM	5/16/12 1210 KM
2	0.2	0.8	<0.2	0.8	5/17/12 735 KM	5/17/12 1210 KM
3	0.2	0.8	<0.2	0.8	5/18/12 735 KM	5/18/12 1200 KM
4	0.2	0.8	<0.2	0.8	5/19/12 730 KM	5/19/12 1205 KM
5	0.2	0.8	<0.2	0.8	5/20/12 730 KM	5/20/12 1230 KM
6	0.2	0.8	<0.2	0.8	5/21/12 735 KM	5/21/12 1230 KM
7	0.2	0.8	<0.2	0.8	N/A	N/A

TREATMENT PREPARATIONS CALCULATIONS						
Conc. (%) (circle one)	Total Volume (mL)	Stock Conc. (% mg/L)	Amount Stock (mL)	Amount Diluent (mL)	HARD (mg/L)	ALK (mg/L)
Control	1200	100	0	1200	N/A	N/A
4%	1200	100	48	1152		
10%	1200	100	120	1080		
21%	1200	100	252	948		
46%	1200	100	552	648		
100%	1200	100	1200	0	32-36	94-106

CALCULATIONS PERFORMED BY: Ly

Verification of:	VERIFIED BY:
Treatment Preparation Calculations	Ly
Number of Organisms	DH
Statistical Analyses	Ly
Statistical Analyses	Ly

ANALYST SIGNATURES	INITIALS
J. Ly	Ly
Kevin	KM

TEST CHAMBER SIZE: 250ml TYPE: Polystyrene VOLUME OF TEST SOLUTION: 150mL

COMMENTS:

Chronic *Americamysis bahia* Survival, Growth and Fecundity Test

JRA# 12-07496

REED & ASSOCIATES

OBSERVATIONS

NPDES#: VA0026514 CLIENT: King George County OUTFALL: 001

ORGANISM SOURCE: Chesapeake Cultures BATCH#: M1098 HATCH DATE: 5/7/12 @ 1500 5/8/12 @ 0830

CONC	REP	NUMBER SURVIVING PER DAY 0	1	2	3	4	5	6	7	Females with eggs	Females without eggs	Males	Immature
Control	1	5	5	5	5	5	5	5	5		111	1	
	2	5	5	5	5	5	5	5	5		1	11	11
	3	5	5	5	5	5	5	5	5		111		11
	4	5	5	5	5	5	5	5	5		11	111	
	5	5	5	5	5	5	5	5	5			1111	1
Survival: 100 %	6	5	5	5	5	5	5	5	5		1	1111	
	7	5	5	5	5	5	5	5	5		11	111	
Fecundity: 0 %	8	5	5	5	5	5	5	5	5			11111	
DATE 12		5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22				
TIME		1125	925	945	940	945	940	1000	1120				
INIT		KM	KM	KM	KM	KM	KM	KM	KM				

CONC	REP	NUMBER SURVIVING PER DAY 0	1	2	3	4	5	6	7	Females with eggs	Females without eggs	Males	Immature
4%	1	5	5	5	5	5	5	5	5				
	2	5	5	5	5	5	5	5	5				
	3	5	5	5	5	5	5	5	5				
	4	5	5	5	5	5	5	5	5				
	5	5	5	5	5	5	5	5	5				
	6	5	5	5	5	5	5	5	5				
	7	5	5	5	5	5	5	5	5				
Survival: 100 %	8	5	5	5	5	5	5	5	5				

CONC	REP	NUMBER SURVIVING PER DAY 0	1	2	3	4	5	6	7	Females with eggs	Females without eggs	Males	Immature
10%	1	5	5	5	5	5	5	5	5				
	2	5	5	4	4	4	4	4	4				
	3	5	5	5	5	5	5	5	5				
	4	5	5	5	5	5	5	5	5				
	5	5	5	5	5	5	5	5	5				
	6	5	5	5	5	5	5	5	5				
	7	5	5	5	5	5	5	5	5				
Survival: 97.5 %	8	5	5	5	5	5	5	5	5				

(Indicate comments with an * and document on General Comments page)

Chronic Americamysis bahia Survival, Growth and Fecundity Test

JRA# 12 - 07496

OBSERVATIONS
(Continued)

NPDES#: VA0026514 CLIENT: King George County OUTFALL: 001

CONC	REP	NUMBER SURVIVING PER DAY 0	1	2	3	4	5	6	7	Females with eggs	Females without eggs	Males	Immature
21%	1	5	5	5	5	5	5	5	5				
	2	5	5	5	5	5	5	5	5				
	3	5	5	5	5	5	5	5	5				
	4	5	5	5	5	5	5	5	5				
	5	5	5	5	5	5	5	5	5				
	6	5	5	5	5	5	5	5	4				
	7	5	5	6	5	5	5	5	5				
	8	5	5	5	5	5	5	5	5				
	9												
Survival: 97.5 %	10												

CONC	REP	NUMBER SURVIVING PER DAY 0	1	2	3	4	5	6	7	Females with eggs	Females without eggs	Males	Immature
46%	1	5	5	5	5	5	5	5	5				
	2	5	5	5	5	5	5	5	5				
	3	5	5	5	5	5	5	5	5				
	4	5	5	5	5	5	5	5	5				
	5	5	5	5	5	5	5	5	5				
	6	5	5	5	5	5	5	5	5				
	7	5	5	5	5	5	5	5	5				
	8	5	5	5	5	5	5	5	5				
	9												
Survival: 100 %	10												

CONC	REP	NUMBER SURVIVING PER DAY 0	1	2	3	4	5	6	7	Females with eggs	Females without eggs	Males	Immature
100%	1	5	5	5	5	3	2	2	1				
	2	5	5	5	5	5	4	4	4				
	3	5	5	5	4	4	4	3	3				
	4	5	5	5	4	4	3	3	3				
	5	5	5	5	5	4	3	3	2				
	6	5	5	5	5	3	3	3	3				
	7	5	5	5	5	4	3	3	2				
	8	5	5	5	5	5	4	4	4				
	9												
Survival: 55 %	10												

(Indicate comments with an * and document on General Comments page)

Chronic *Americamysis bahia* Survival, Growth and Fecundity Test JRA: 12-07496

NPDS# CLIENT: King George County OUTFALL#_____ 001

VA0026514 GROWTH DATA

CONC.	REP	FOIL#	FOIL WT(mg)	FOIL WT&ORG WT(mg)	WT OF ORGS(mg)	#ORGS	MEAN		
	A	1R	4.257	5.707	1.45	5	0.290		
	B	2R	3.830	5.46	1.630	5	0.326		
Control	C	3R	4.150	5.926	1.776	5	0.355	Ave. wt of surviving	
	D	4R	4.083	5.704	1.621	5	0.324	Control:(mg)	0.305
	E	5R	3.708	5.053	1.345	5	0.269		
	F	6R	4.493	6.099	1.606	5	0.321	ave. wt :	0.305
	G	7R	4.283	5.717	1.434	5	0.287		
	H	8R	3.584	4.905	1.321	5	0.264		
	A	9R	4.058	5.626	1.568	5	0.314		
	B	10R	3.744	5.088	1.344	5	0.269		
4%	C	11R	3.978	5.47	1.492	5	0.298		
	D	12R	3.823	5.176	1.353	5	0.271		
	E	13R	3.267	4.613	1.346	5	0.269		
	F	14R	4.603	5.897	1.294	5	0.259		
	G	15R	3.852	5.124	1.272	5	0.254		
	H	16R	4.81	6.075	1.265	5	0.253	ave. wt :	0.273
	A	17R	3.965	5.321	1.356	5	0.271		
	B	18R	5.164	6.275	1.111	5	0.222		
10%	C	19R	4.325	5.641	1.316	5	0.263		
	D	20R	4.081	5.368	1.287	5	0.257		
	E	21R	4.75	6.006	1.256	5	0.251		
	F	22R	5.005	6.307	1.302	5	0.260		
	G	23R	5.21	6.403	1.193	5	0.239		
	H	24R	5.2	6.002	0.802	5	0.160	ave. wt :	0.241
	A	25R	4.83	5.981	1.151	5	0.230		
	B	26R	3.898	5.332	1.434	5	0.287		
21%	C	27R	4.784	5.957	1.173	5	0.235		
	D	28R	3.575	4.834	1.259	5	0.252		
	E	29R	3.66	4.793	1.133	5	0.227		
	F	30R	4.201	5.242	1.041	5	0.208		
	G	31R	3.605	5.195	1.590	5	0.318		
	H	32R	4.29	5.300	1.010	5	0.202	ave. wt :	0.245
	A	33R	4.526	5.783	1.257	5	0.251		
	B	34R	5.076	6.321	1.245	5	0.249		
46%	C	35R	4.95	6.134	1.184	5	0.237		
	D	36R	3.912	4.999	1.087	5	0.217		
	E	37R	4.311	5.435	1.124	5	0.225		
	F	38R	4.865	6.173	1.308	5	0.262		
	G	39R	4.807	5.915	1.108	5	0.222		
	H	40R	4.217	5.400	1.183	5	0.237	ave. wt :	0.237
	A	41R	4.435	4.886	0.451	5	0.090		
	B	42R	4.213	5.303	1.09	5	0.218		
100%	C	43R	5.285	6.059	0.774	5	0.155		
	D	44R	5.525	6.397	0.872	5	0.174		
	E	45R	4.655	5.154	0.499	5	0.100		
	F	46R	5.758	6.336	0.578	5	0.116		
	G	47R	4.805	5.449	0.644	5	0.129		
	H	48R	5.651	6.487	0.836	5	0.167	ave. wt :	0.144

Date	5/17/2012	5/23/2012
Intials	LD	LD

Date/Time in Oven 5/22/23@1300 Analyst__KH_____ Oven Temp°C_____104_____

Date/Time out of Oven 5/23/12@0700 Analyst____KH_____ Oven Temp°C_____104_____

Chronic *Americamysis bahia* Survival, Growth and Fecundity Test JRA# 12-07496

PHYSICAL/CHEMICAL DATA

NPDES#: VA0026514 CLIENT: King George County OUTFALL: 001

CONC: Control		DAY 0	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
TEMP (°C)	NEW	25.3	25.4	25.2	25.2	25.4	25.6	25.7	N/A
	END	N/A	25.7	25.3	25.7	25.7	25.7	25.6	25.7
pH	NEW	8.43	8.21	8.35	8.38	8.36	8.33	8.31	N/A
	END	N/A	7.74	7.76	7.75	7.60	7.75	7.87	7.69
DO (mg/L)	NEW	6.7	6.8	6.7	7.2	6.8	6.6	6.7	N/A
	END	N/A	5.8	6.3	6.3	6.2	6.0	6.4	6.8
SALINITY (ppt)		20	21	21	20	20	20	20	N/A
DATE/TIME		5/15/12	5/16/12	5/17/12	5/18/12	5/19/12	5/20/12	5/21/12	5/22/12
INITIALS		KH	KH	KH	KH	KH	KH	KH	KH

CONC: 4%		DAY 0	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
TEMP (°C)	NEW	25.3	25.4	25.2	25.1	25.4	25.3	25.7	N/A
	END	N/A	25.7	25.3	25.7	25.7	25.7	25.6	25.7
pH	NEW	8.34	8.21	8.34	8.37	8.34	8.35	8.27	N/A
	END	N/A	7.77	7.57	7.83	7.68	7.67	7.81	7.72
DO (mg/L)	NEW	6.8	6.8	6.7	7.0	6.8	6.8	6.7	N/A
	END	N/A	5.8	5.9	6.1	6.0	5.7	6.1	6.7
SALINITY (ppt)		20	21	21	20	20	20	20	N/A

CONC: 10%		DAY 0	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
TEMP (°C)	NEW	25.3	25.3	25.3	25.1	25.6	25.6	25.7	N/A
	END	N/A	25.7	25.3	25.7	25.7	25.7	25.6	25.7
pH	NEW	8.32	8.21	8.32	8.36	8.31	8.33	8.26	N/A
	END	N/A	7.84	7.59	7.90	7.74	7.79	7.88	7.79
DO (mg/L)	NEW	6.7	6.7	6.6	7.0	6.7	6.8	6.6	N/A
	END	N/A	5.9	5.8	6.1	6.1	5.9	6.2	6.7
SALINITY (ppt)		20	21	21	20	20	20	20	N/A

(Indicate comments with an * and document on General Comments page)

Chronic *Americamysis bahia* Survival, Growth and Fecundity Test JRA# 12-07496

PHYSICAL/CHEMICAL DATA

NPDES#: VA0026514 CLIENT: King George County OUTFALL: 001

CONC: 21%		DAY 0	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
TEMP (°C)	NEW	25.3	25.3	25.2	25.2	25.6	25.6	25.7	N/A
	END	N/A	25.7	25.3	25.7	25.7	25.7	25.6	25.7
pH	NEW	8.29	8.20	8.28	8.32	8.28	8.30	8.23	N/A
	END	N/A	7.83	7.80	7.93	7.83	7.79	7.88	7.85
DO (mg/L)	NEW	6.7	6.8	6.6	6.9	6.7	6.7	6.6	N/A
	END	N/A	5.9	6.1	6.1	6.2	5.8	6.1	6.8
SALINITY (ppt)		20	21	21	20	20	20	20	N/A
DATE/TIME 2012		5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22
INITIALS		CD	KH	KH	KH	KH	KH	KH	KH

CONC: 46%		DAY 0	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
TEMP (°C)	NEW	25.7	25.4	25.3	25.2	25.6	25.6	25.7	N/A
	END	N/A	25.7	25.3	25.7	25.7	25.7	25.6	25.7
pH	NEW	8.22	8.19	8.23	8.25	8.21	8.24	8.18	N/A
	END	N/A	7.96	7.91	8.04	7.98	7.94	7.97	7.96
DO (mg/L)	NEW	6.7	6.8	6.7	7.0	6.7	6.7	6.8	N/A
	END	N/A	5.9	6.0	6.0	6.1	5.9	6.1	6.7
SALINITY (ppt)		20	21	20	20	20	20	20	N/A

CONC: 100%		DAY 0	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
TEMP (°C)	NEW	25.2	25.4	25.5	25.2	25.2	25.3	25.4	N/A
	END	N/A	25.7	25.3	25.7	25.7	25.7	25.6	25.7
pH	NEW	8.12	8.17	8.16	8.17	8.17	8.16	8.14	N/A
	END	N/A	8.10	8.20	8.22	8.18	8.13	8.10	8.16
DO (mg/L)	NEW	7.3	7.2	7.2	7.3	7.3	7.2	7.3	N/A
	END	N/A	5.9	6.3	6.3	6.1	6.1	6.1	6.6
SALINITY (ppt)		20	20	20	20	20	20	20	N/A

(Indicate comments with an * and document on General Comments page)

Mysid Survival, Growth and Fecundity Test-7 Day Survival

Start Date:	5/15/2012	Test ID:	12-07496MB	Sample ID:	12-07496MB
End Date:	5/22/2012	Lab ID:	JRR	Sample Type:	EFF1-POTW
Sample Date:		Protocol:	EPAM 94-EPA/600/4-91/003	Test Species:	MY-Mysidopsis bahia
Comments:					

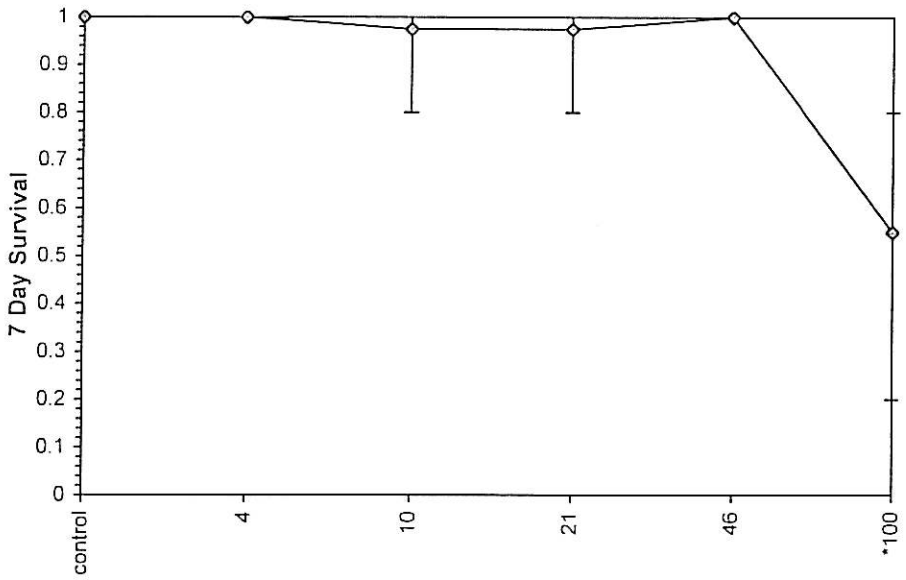
Conc-%	1	2	3	4	5	6	7	8
control	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10	1.0000	0.8000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
21	1.0000	1.0000	1.0000	1.0000	1.0000	0.8000	1.0000	1.0000
46	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100	0.2000	0.8000	0.6000	0.6000	0.4000	0.6000	0.4000	0.8000

			Transform: Arcsin Square Root					Rank	1-Tailed
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical
control	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	8		
4	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	8	68.00	46.00
10	0.9750	0.9750	1.3155	1.1071	1.3453	6.400	8	64.00	46.00
21	0.9750	0.9750	1.3155	1.1071	1.3453	6.400	8	64.00	46.00
46	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	8	68.00	46.00
*100	0.5500	0.5500	0.8382	0.4636	1.1071	26.252	8	36.00	46.00

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.05)	0.68102	0.947	-0.9437	6.54768
Equality of variance cannot be confirmed				

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Steel's Many-One Rank Test	46	100	67.8233	2.17391
Treatments vs control	✓	✓		

Dose-Response Plot



ToxCalc v5.0.32

Reviewed by: LD

Mysid Survival, Growth and Fecundity Test-Growth-Weight

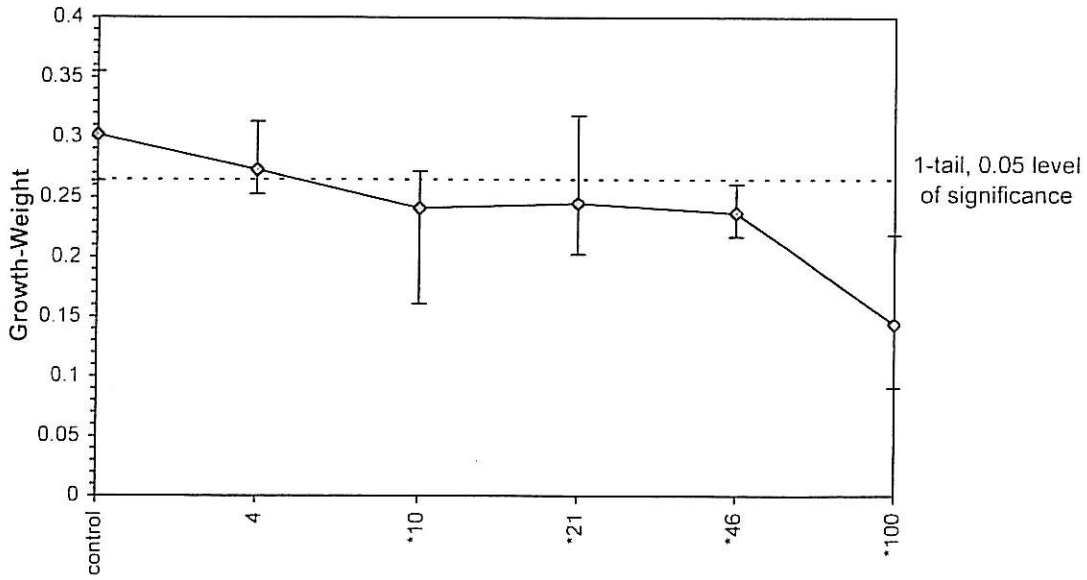
Start Date:	5/15/2012	Test ID:	12-07496MB	Sample ID:	12-07496MB
End Date:	5/22/2012	Lab ID:	JRR	Sample Type:	EFF1-POTW
Sample Date:		Protocol:	EPAM 94-EPA/600/4-91/003	Test Species:	MY-Mysidopsis bahia
Comments:					

Conc-%	1	2	3	4	5	6	7	8
control	0.2900	0.3260	0.3552	0.3242	0.2690	0.3032	0.2868	0.2642
4	0.3136	0.2688	0.2984	0.2706	0.2692	0.2588	0.2544	0.2530
10	0.2712	0.2222	0.2632	0.2574	0.2512	0.2604	0.2386	0.1604
21	0.2302	0.2868	0.2346	0.2518	0.2266	0.2082	0.3180	0.2020
46	0.2514	0.2490	0.2368	0.2174	0.2248	0.2616	0.2216	0.2366
100	0.0902	0.2180	0.1548	0.1744	0.0998	0.1156	0.1288	0.1672

			Transform: Untransformed					1-Tailed		
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
control	0.3023	1.0000	0.3023	0.2642	0.3552	10.304	8			
4	0.2734	0.9042	0.2734	0.2530	0.3136	7.917	8	1.776	2.306	0.0376
*10	0.2406	0.7957	0.2406	0.1604	0.2712	14.912	8	3.784	2.306	0.0376
*21	0.2448	0.8096	0.2448	0.2020	0.3180	16.188	8	3.527	2.306	0.0376
*46	0.2374	0.7852	0.2374	0.2174	0.2616	6.614	8	3.979	2.306	0.0376
*100	0.1436	0.4750	0.1436	0.0902	0.2180	29.940	8	9.727	2.306	0.0376

Auxiliary Tests					Statistic		Critical		Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.05)					0.98264		0.947		0.14888	0.53808
Bartlett's Test indicates equal variances (p = 0.14)					8.28838		15.0863			
Hypothesis Test (1-tail, 0.05)	**NOEC**	**LOEC**	**ChV**	**TU**	**MSDu**	**MSDp**	**MSB**	**MSE**	**F-Prob**	**df**
Dunnett's Test	4	10	6.32456	25	0.03762	0.12445	0.02291	0.00107	1.3E-10	5, 42
Treatments vs control	✓	✓								

Dose-Response Plot



ToxCalc v5.0.32

Reviewed by: Ln

Mysid Survival, Growth and Fecundity Test-Growth-Weight

Start Date:	5/15/2012	Test ID:	12-07496MB	Sample ID:	12-07496MB
End Date:	5/22/2012	Lab ID:	JRR	Sample Type:	EFF1-POTW
Sample Date:		Protocol:	EPAM 94-EPA/600/4-91/003	Test Species:	MY-Mysidopsis bahia
Comments:					

Conc-%	1	2	3	4	5	6	7	8
control	0.2900	0.3260	0.3552	0.3242	0.2690	0.3032	0.2868	0.2642
4	0.3136	0.2688	0.2984	0.2706	0.2692	0.2588	0.2544	0.2530
10	0.2712	0.2222	0.2632	0.2574	0.2512	0.2604	0.2386	0.1604
21	0.2302	0.2868	0.2346	0.2518	0.2266	0.2082	0.3180	0.2020
46	0.2514	0.2490	0.2368	0.2174	0.2248	0.2616	0.2216	0.2366
100	0.0902	0.2180	0.1548	0.1744	0.0998	0.1156	0.1288	0.1672

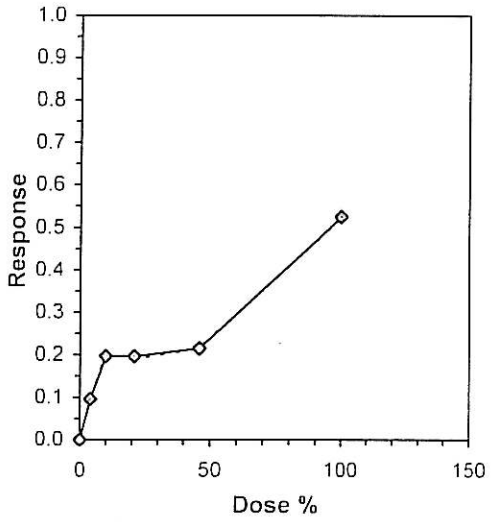
			Transform: Untransformed					Isotonic	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Mean	N-Mean
control	0.3023	1.0000	0.3023	0.2642	0.3552	10.304	8	0.3023	1.0000
4	0.2734	0.9042	0.2734	0.2530	0.3136	7.917	8	0.2734	0.9042
10	0.2406	0.7957	0.2406	0.1604	0.2712	14.912	8	0.2427	0.8027
21	0.2448	0.8096	0.2448	0.2020	0.3180	16.188	8	0.2427	0.8027
46	0.2374	0.7852	0.2374	0.2174	0.2616	6.614	8	0.2374	0.7852
100	0.1436	0.4750	0.1436	0.0902	0.2180	29.940	8	0.1436	0.4750

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.05)	0.98264	0.947	0.14888	0.53808
Bartlett's Test indicates equal variances (p = 0.14)	8.28838	15.0863		

Linear Interpolation (200 Resamples)

Point	%	SD	95% CL		Skew
IC05*	2.087	1.156	1.098	5.391	1.2824
IC10	4.246	2.306	2.197	8.911	4.0292
IC15	7.203	6.947	3.295	29.657	3.0893
IC20	24.863	17.594	5.498	52.211	0.3004
IC25 ✓	52.135 ✓	14.877	9.312	62.064	-1.5625
IC40	78.242				
IC50	95.646				

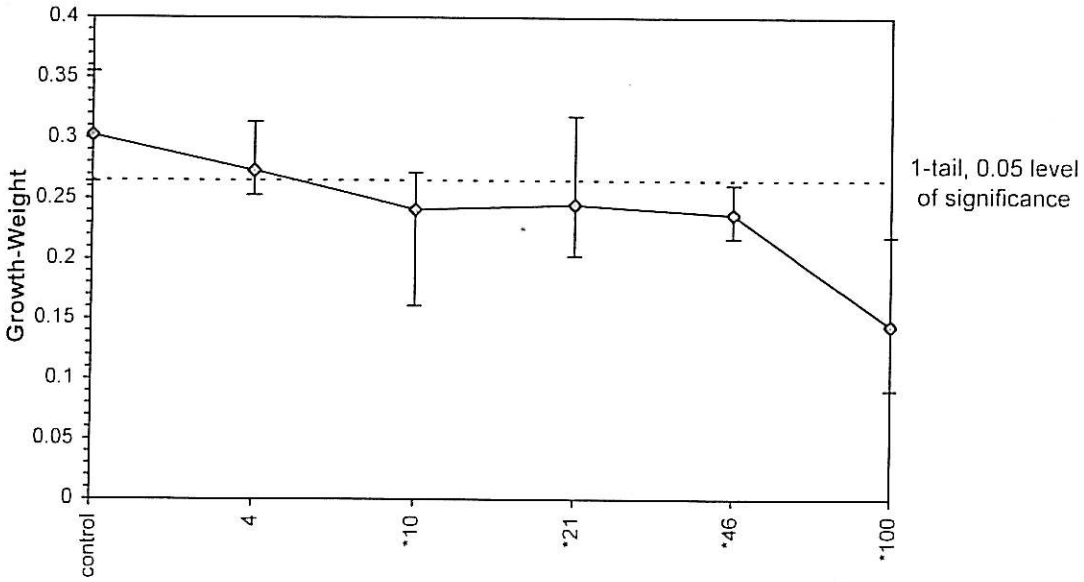
* indicates IC estimate less than the lowest concentration



Mysid Survival, Growth and Fecundity Test-Growth-Weight

Start Date:	5/15/2012	Test ID:	12-07496MB	Sample ID:	12-07496MB
End Date:	5/22/2012	Lab ID:	JRR	Sample Type:	EFF1-POTW
Sample Date:		Protocol:	EPAM 94-EPA/600/4-91/003	Test Species:	MY-Mysidopsis bahia
Comments:					

Dose-Response Plot



Reviewed by: LH

Chronic *Cyprinodon variegatus* Larval Survival and Growth Test JRA# 12-07496

OBSERVATIONS

NPDES#:VA0026514 CLIENT:King George County OUTFALL:_____

ORGANISM SOURCE: ABS JRA BATCH #: CS11 HATCH DATE: 5/14/12

CONC	REP	NUMBER SURVIVING/DAY							
		DAY 0	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
Control	A	10	10	10	10	10	10	10	10
	B	10	10	10	10	10	10	10	10
	C	10	10	10	10	10	10	10	10
$\bar{x}$ SUV 100 %	D	10	10	10	10	10	10	10	10
4%	A	10	10	10	10	10	10	10	10
	B	10	10	10	10	10	10	10	10
	C	10	10	10	10	10	10	9	9
$\bar{x}$ SUV 97.5 %	D	10	10	10	10	10	10	10	10
10%	A	10	10	10	10	10	10	10	10
	B	10	10	10	10	10	10	10	10
	C	10	10	10	10	10	10	10	10
$\bar{x}$ SUV 100 %	D	10	10	10	10	10	10	10	10
21%	A	10	10	10	10	10	10	10	10
	B	10	10	10	10	10	10	10	10
	C	10	10	10	10	10	10	10	10
$\bar{x}$ SUV 100 %	D	10	10	10	10	10	10	10	10
46%	A	10	10	10	10	10	10	10	10
	B	10	10	10	10	10	10	10	10
	C	10	10	10	10	10	10	10	10
$\bar{x}$ SUV 100 %	D	10	10	10	10	10	10	10	10
100%	A	10	10	10	10	10	10	10	10
	B	10	10	10	10	10	10	10	10
	C	10	10	10	10	10	10	10	10
$\bar{x}$ SUV 100 %	D	10	10	10	10	10	10	10	10
DATE		5/16/12	5/17/12	5/18/12	5/19/12	5/20/12	5/21/12	5/22/12	5/23/12
TIME		950	920	915	920	920	930	1000	915
INIT		KM	KM	KM	KM	KM	KM	KM	KM

(Indicate comments with an * and document on General Comments page)

Chronic C.variegatus Survival and Growth Test JRA: 12-07496

NPDS# CLIENT: King George County OUTFALL#___ 001

VA0026514 GROWTH DATA

CONC.	REP	FOIL#	FOIL WT(mg)	FOIL WT&ORG WT(mg)	WT OF ORGS(mg)	#ORGS	MEAN		
	A	1H	4.475	21.477	17.002	10	1.700		
	B	2H	3.801	20.144	16.343	10	1.634		
Control	C	3H	4.441	20.755	16.314	10	1.631	Ave. wt of surviving	
	D	4H	3.408	18.224	14.816	10	1.482	Control:(mg)	1.612
								ave. wt :	1.612
	A	5H	3.002	18.183	15.181	10	1.518		
	B	6H	3.651	18.030	14.379	10	1.438		
4%	C	7H	3.232	18.487	15.255	10	1.526		
	D	8H	3.338	18.844	15.506	10	1.551		
								ave. wt :	1.508
	A	9H	3.573	18.631	15.058	10	1.506		
	B	10H	3.936	19.212	15.276	10	1.528		
10%	C	11H	4.216	20.787	16.571	10	1.657		
	D	12H	4.145	19.966	15.821	10	1.582		
								ave. wt :	1.568
	A	13H	4.159	18.801	14.642	10	1.464		
	B	14H	3.592	17.935	14.343	10	1.434		
21%	C	15H	3.722	20.461	16.739	10	1.674		
	D	16H	4.683	19.696	15.013	10	1.501		
								ave. wt :	1.518
	A	17H	3.154	19.223	16.069	10	1.607		
	B	18H	4.568	19.576	15.008	10	1.501		
46%	C	19H	4.704	21.515	16.811	10	1.681		
	D	20H	4.256	20.461	16.205	10	1.621		
								ave. wt :	1.602
	A	21H	5.032	21.544	16.512	10	1.651		
	B	22H	4.138	20.210	16.072	10	1.607		
100%	C	23H	5.220	22.2	16.980	10	1.698		
	D	24H	5.326	21.094	15.768	10	1.577		
								ave. wt :	1.633

	Date	5/17/2012	5/24/2012
	Intials	LD	LD

Date/Time in Oven: 5/23/12@1030 Analyst__KH_____ Oven Temp°C_____104_____

Date/Time out of Oven: 5/24/12@0700 Analyst: KH Oven Temp°C_____104_____

Chronic *Cyprinodon variegatus* Larval Survival and Growth Test JRA# 12-07496

PHYSICAL/CHEMICAL DATA

NPDES#:VA0026514 CLIENT: King George County OUTFALL:001

CONC: Control		DAY 0	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
TEMP (°C)	NEW	25.3	25.2	25.2	25.4	25.6	25.7	25.3	N/A
	END	N/A	24.5	24.7	24.5	24.5	24.8	25.3	24.5
pH	NEW	8.43	8.35	8.38	8.36	8.33	8.31	8.21	N/A
	END	N/A	7.75	7.46	7.42	7.61	7.57	7.30	7.50
DO (mg/L)	NEW	6.7	6.7	7.2	6.8	6.6	6.7	6.7	N/A
	END	N/A	6.2	5.7	6.0	5.8	5.8	5.7	6.3
SALINITY (ppt)		20	21	20	20	20	20	21	N/A
DATE/TIME		5/16/12	5/17/12	5/18/12	5/19/12	5/20/12	5/21/12	5/22/12	5/23/12
INITIALS		KH	KH	KH	KH	KH	KH	KH	KH

CONC: 4%		DAY 0	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
TEMP (°C)	NEW	24.4	25.2	25.1	25.4	25.3	25.7	25.3	N/A
	END	N/A	24.5	24.7	24.5	24.5	24.8	25.3	24.5
pH	NEW	8.17	8.34	8.37	8.34	8.35	8.27	8.20	N/A
	END	N/A	7.73	7.67	7.58	7.60	7.60	7.33	7.57
DO (mg/L)	NEW	7.2	6.7	7.0	6.8	6.8	6.7	6.7	N/A
	END	N/A	6.1	5.7	6.0	5.7	5.7	5.7	6.5
SALINITY (ppt)		20	21	20	20	20	20	21	N/A

CONC: 10%		DAY 0	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
TEMP (°C)	NEW	24.4	25.3	25.1	25.6	25.6	25.7	25.3	N/A
	END	N/A	24.5	24.7	24.5	24.5	24.8	25.3	24.5
pH	NEW	8.18	8.32	8.36	8.31	8.33	8.26	8.19	N/A
	END	N/A	7.77	7.70	7.61	7.66	7.62	7.36	7.60
DO (mg/L)	NEW	7.2	6.6	7.0	6.7	6.8	6.6	6.7	N/A
	END	N/A	6.1	5.7	6.0	5.7	5.6	5.5	6.5
SALINITY (ppt)		20	21	20	20	20	20	21	N/A

(Indicate comments with an * and document on General Comments page)

Chronic *Cyprinodon variegatus* Larval Survival and Growth Test JRA# 12-07496

PHYSICAL/CHEMICAL DATA

NPDES#:VA0026514 CLIENT: King George County OUTFALL:001

CONC: 21%		DAY 0	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
TEMP (°C)	NEW	24.4	25.2	25.2	25.6	25.6	25.7	25.3	N/A
	END	N/A	24.5	24.7	24.5	24.5	24.8	25.3	24.5
pH	NEW	8.20	8.28	8.32	8.28	8.30	8.23	8.18	N/A
	END	N/A	7.83	7.76	7.70	7.72	7.70	7.46	7.71
DO (mg/L)	NEW	7.1	6.6	6.9	6.7	6.7	6.6	6.8	N/A
	END	N/A	6.0	5.7	6.0	5.8	5.7	5.5	6.6
SALINITY (ppt)		20	21	20	20	20	20	20	N/A
DATE/TIME		5/16/12	5/17/12	5/18/12	5/19	5/20	5/21	5/22	5/23
INITIALS		KM	KM	KM	KM	KM	KM	KM	KM

CONC: 46%		DAY 0	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
TEMP (°C)	NEW	24.4	25.3	25.2	25.6	25.6	25.7	25.3	N/A
	END	N/A	24.5	24.7	24.5	24.5	24.8	25.3	24.5
pH	NEW	8.22	8.23	8.25	8.21	8.24	8.18	8.17	N/A
	END	N/A	7.87	7.92	7.90	7.81	7.70	7.60	7.78
DO (mg/L)	NEW	7.1	6.7	7.0	6.7	6.7	6.8	6.9	N/A
	END	N/A	5.9	5.8	6.1	5.8	5.5	5.5	6.4
SALINITY (ppt)		20	20	20	20	20	20	20	N/A

CONC: 100%		DAY 0	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
TEMP (°C)	NEW	25.2	25.5	25.2	25.2	25.3	25.4	25.5	N/A
	END	N/A	24.5	24.7	24.5	24.5	24.8	25.3	24.5
pH	NEW	8.12	8.16	8.17	8.17	8.16	8.14	8.17	N/A
	END	N/A	8.07	8.05	8.05	7.97	7.83	7.85	7.93
DO (mg/L)	NEW	7.3	7.2	7.3	7.3	7.2	7.3	7.3	N/A
	END	N/A	5.9	5.7	6.0	5.7	5.3	5.4	6.2
SALINITY (ppt)		20	20	20	20	20	20	20	N/A

(Indicate comments with an * and document on General Comments page)

Chronic *Cyprinodon variegatus* Larval Survival and Growth Test JRA# 12-07496

GENERAL COMMENTS

NPDES#: VA0026514 CLIENT: King Geroge County OUTFALL: 001

FEEDINGS	DAY 0	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6
Date/Time		5/17/12 735	5/18/12 735	5/19/12 730	5/20/12 730	5/21/12 735	5/22/12 730
INITIALS							
Date/Time	5/16/12 1210	5/17/12 1210	5/18/12 1200	5/19/12 1205	5/20/12 1230	5/21/12 1230	5/22/12 1400
INITIALS							

TREATMENT PREPARATIONS CALCULATIONS							ANALYST SIGNATURES	INITIALS
Conc. (mg/L)	Total Volume (mL)	Stock Conc. (mg/L)	Amount Stock (mL)	Amount Diluent (mL)	Verification of:	VERIFIED BY:		
Control	1000	100%	0	1000	Treatment Preparation Calculations			
4%	1000	100%	40	960	Number of Organisms			
10%	1000	100%	100	900	Statistical Analyses			
21%	1000	100%	210	790				
46%	1000	100%	460	540				
100%	1000	100%	1000	0				

TEST CHAMBER SIZE: 500mL TYPE: Polystyrene VOLUME OF TEST SOLUTION: 250mL

COMMENTS: Chronic cyprinodon variegatus test was set up on 5/16/12 @ 0950 due to ReEx delivery error. The test was still ~~initiated~~ initiated within 36 hours of sample holding time.

Chronic *Cyprinodon variegatus* Larval Survival and Growth Test JRA# 12-07496

WATER QUALITY

NPDES#: VA0026514 CLIENT: King Geroge County OUTFALL: 001

SAMPLE (PRIOR TO RENEWALS)

DATE	DAY	COLLECTION DATE/TIME	ARRIVAL DATE	TEMP (°C)	INIT pH	FINAL pH	INIT DO (mg/L)	FINAL DO (mg/L)	INIT SAL (ppt)	FINAL SAL (ppt) 20±1	INIT TRC (mg/L)	FINAL TRC (mg/L)
5/16/12	0	5/14/12 6:00 5/15/12 6:00	5/15/12	25.2	7.85	8.12	10.4	7.3	<1	20	<0.02	—
5/17/12	1	"	"	25.5	7.82	8.16	10.8	7.2	<1	20	<0.02	—
5/18/12	2	5/16/12 600 5/17/12 600	5/17/12	25.2	7.73	8.17	9.7	7.3	<1	20	<0.02	—
5/19/12	3	"	"	25.2	7.73	8.17	10.6	7.3	<1	20	<0.02	—
5/20/12	4	5/18/12 600 5/19/12 600	5/19/12	25.3	7.70	8.16	9.9	7.2	<1	20	<0.02	—
5/21/12	5	"	"	25.4	7.66	8.14	10.7	7.3	<1	20	<0.02	—
5/22/12	6	"	"	25.5	7.78	8.17	11.0	7.3	<1	20	<0.02	—

DO Adjustments

Date	5/16/12	5/17/12	5/18/12	5/19/12	5/20/12	5/21/12	5/22/12
Method	Aerate	Aerate	Aerate	Aerate	Aerate	Aerate	Aerate
Minutes	15+10	20	20	20	20	20	20

pH Adjustments

Date							
Method							
Amount							

TRC Adjustments

Date							
Method							
Amount							

DILUENT (Forty Fathoms Hawaiian Marine Mix Other _____) CIRCLE ONE

DATE	DAY	DATE MADE	TEMP (°C) 25±1	pH (6 - 9)	DO (mg/L) >60,<100%	SAL (ppt) 20±1	TRC (mg/L)
5/16/12	0	5/14/12	25.3	8.43	6.7	20	<0.02
5/17/12	1	5/16/12	25.2	8.35	6.7	21	<0.02
5/18/12	2	5/17/12	25.2	8.38	7.2	20	<0.02
5/19/12	3	5/18/12	25.4	8.36	6.8	20	<0.02
5/20/12	4	5/18/12	25.6	8.33	6.6	20	<0.02
5/21/12	5	5/19/12	25.7	8.31	6.7	20	<0.02
5/22/12	6	5/20/12	25.3	8.21	6.7	21	<0.02

Larval Fish Growth and Survival Test-7 Day Survival

Start Date:	5/16/2012	Test ID:	1207496CV	Sample ID:	1207496CV
End Date:	5/23/2012	Lab ID:	JRR	Sample Type:	EFF1-POTW
Sample Date:		Protocol:	EPAM 94-EPA/600/4-91/003	Test Species:	CV-Cyprinodon variegatus
Comments:					

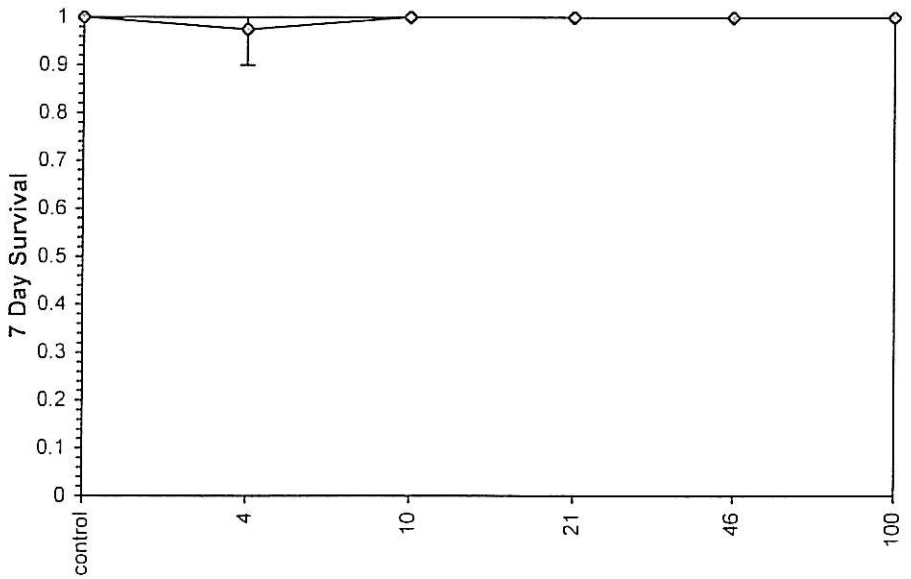
Conc-mg/L	1	2	3	4
control	1.0000	1.0000	1.0000	1.0000
4	1.0000	1.0000	0.9000	1.0000
10	1.0000	1.0000	1.0000	1.0000
21	1.0000	1.0000	1.0000	1.0000
46	1.0000	1.0000	1.0000	1.0000
100	1.0000	1.0000	1.0000	1.0000

			Transform: Arcsin Square Root					Rank	1-Tailed
Conc-mg/L	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical
control	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	4		
4	0.9750	0.9750	1.3713	1.2490	1.4120	5.942	4	16.00	10.00
10	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	4	18.00	10.00
21	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	4	18.00	10.00
46	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	4	18.00	10.00
100	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	4	18.00	10.00

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.05)	0.46508	0.916	-3.0206	13.9892
Equality of variance cannot be confirmed				

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Steel's Many-One Rank Test	100	>100		
Treatments vs control				

Dose-Response Plot



Larval Fish Growth and Survival Test-7 Day Growth

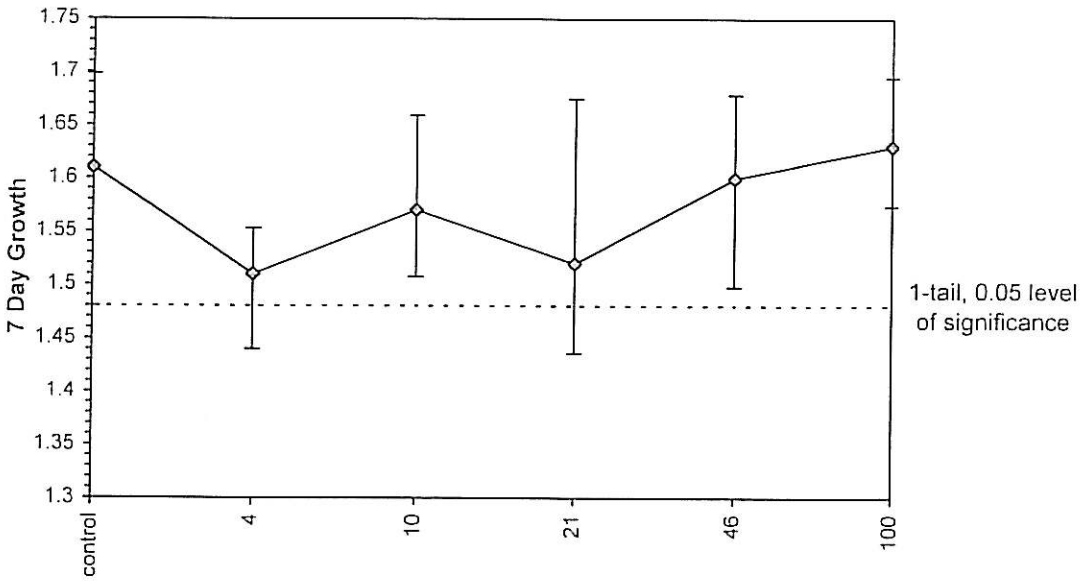
Start Date:	5/16/2012	Test ID:	1207496CV	Sample ID:	1207496CV
End Date:	5/23/2012	Lab ID:	JRR	Sample Type:	EFF1-POTW
Sample Date:		Protocol:	EPAM 94-EPA/600/4-91/003	Test Species:	CV-Cyprinodon variegatus
Comments:					

Conc-mg/L	1	2	3	4
control	1.7002	1.6343	1.6314	1.4816
4	1.5181	1.4379	1.5255	1.5506
10	1.5058	1.5276	1.6571	1.5821
21	1.4642	1.4343	1.6739	1.5013
46	1.6069	1.5008	1.6811	1.6205
100	1.6512	1.6072	1.6980	1.5768

			Transform: Untransformed					1-Tailed		
Conc-mg/L	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
control	1.6119	1.0000	1.6119	1.4816	1.7002	5.737	4			
4	1.5080	0.9356	1.5080	1.4379	1.5506	3.234	4	1.912	2.410	0.1309
10	1.5682	0.9729	1.5682	1.5058	1.6571	4.300	4	0.805	2.410	0.1309
21	1.5184	0.9420	1.5184	1.4343	1.6739	7.061	4	1.721	2.410	0.1309
46	1.6023	0.9941	1.6023	1.5008	1.6811	4.679	4	0.176	2.410	0.1309
100	1.6333	1.0133	1.6333	1.5768	1.6980	3.236	4	-0.395	2.410	0.1309

Auxiliary Tests					Statistic		Critical		Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.05)					0.98018		0.916		0.17519	-0.0595
Bartlett's Test indicates equal variances (p = 0.78)					2.4555		15.0863			
Hypothesis Test (1-tail, 0.05)	**NOEC**	**LOEC**	**ChV**	**TU**	**MSDu**	**MSDp**	**MSB**	**MSE**	**F-Prob**	**df**
Dunnett's Test	100	>100			0.13087	0.08119	0.01058	0.0059	0.16484	5, 18
Treatments vs control										

Dose-Response Plot



ToxCalc v5.0.32

Reviewed by:

Larval Fish Growth and Survival Test-7 Day Growth

Start Date:	5/16/2012	Test ID:	1207496CV	Sample ID:	1207496CV
End Date:	5/23/2012	Lab ID:	JRR	Sample Type:	EFF1-POTW
Sample Date:		Protocol:	EPAM 94-EPA/600/4-91/003	Test Species:	CV-Cyprinodon variegatus
Comments:					

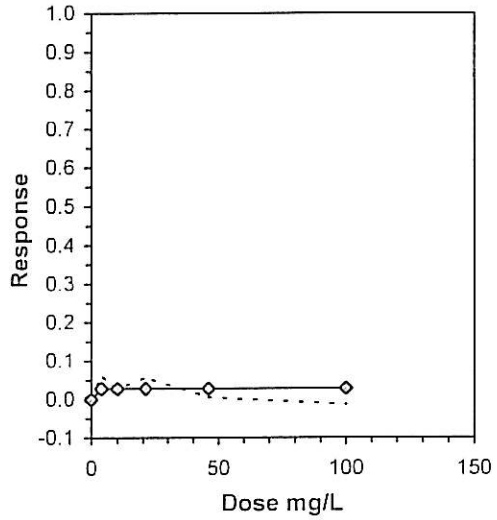
Conc-mg/L	1	2	3	4
control	1.7002	1.6343	1.6314	1.4816
4	1.5181	1.4379	1.5255	1.5506
10	1.5058	1.5276	1.6571	1.5821
21	1.4642	1.4343	1.6739	1.5013
46	1.6069	1.5008	1.6811	1.6205
100	1.6512	1.6072	1.6980	1.5768

			Transform: Untransformed					Isotonic	
Conc-mg/L	Mean	N-Mean	Mean	Min	Max	CV%	N	Mean	N-Mean
control	1.6119	1.0000	1.6119	1.4816	1.7002	5.737	4	1.6119	1.0000
4	1.5080	0.9356	1.5080	1.4379	1.5506	3.234	4	1.5660	0.9716
10	1.5682	0.9729	1.5682	1.5058	1.6571	4.300	4	1.5660	0.9716
21	1.5184	0.9420	1.5184	1.4343	1.6739	7.061	4	1.5660	0.9716
46	1.6023	0.9941	1.6023	1.5008	1.6811	4.679	4	1.5660	0.9716
100	1.6333	1.0133	1.6333	1.5768	1.6980	3.236	4	1.5660	0.9716

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.05)	0.98018	0.916	0.17519	-0.0595
Bartlett's Test indicates equal variances (p = 0.78)	2.4555	15.0863		

Linear Interpolation (200 Resamples)

Point	mg/L	SD	95% CL(Exp)	Skew
IC05	>100			
IC10	>100			
IC15	>100			
IC20	>100			
IC25 ✓	>100			
IC40	>100			
IC50	>100			

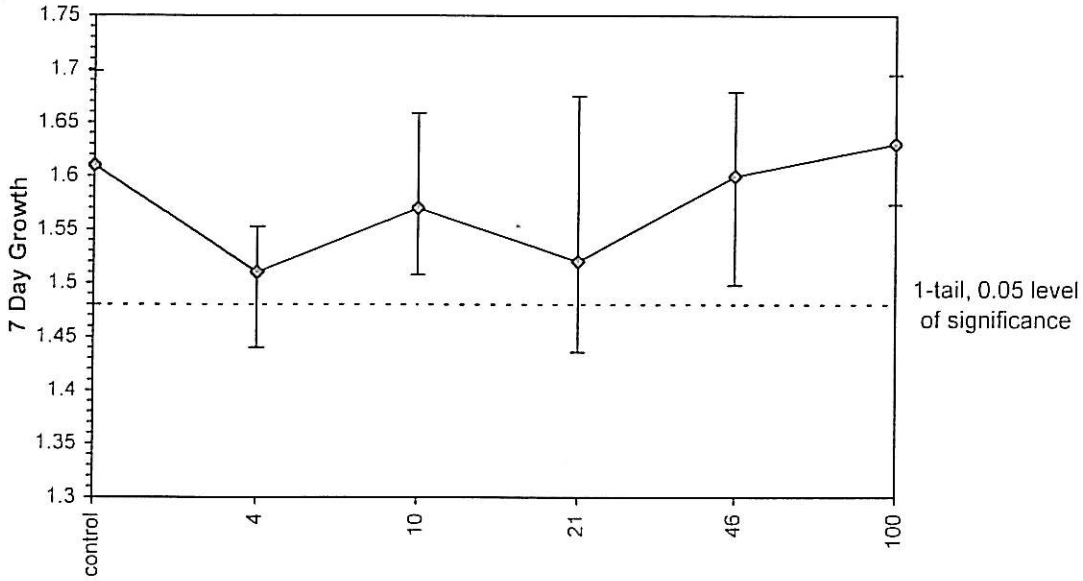


Reviewed by: LY

Larval Fish Growth and Survival Test-7 Day Growth

Start Date:	5/16/2012	Test ID:	1207496CV	Sample ID:	1207496CV
End Date:	5/23/2012	Lab ID:	JRR	Sample Type:	EFF1-POTW
Sample Date:		Protocol:	EPAM 94-EPA/600/4-91/003	Test Species:	CV-Cyprinodon variegatus
Comments:					

Dose-Response Plot



Reviewed by: LY

Rev. 6/04

Toxicity Test Sample Chain of Custody

(Please complete all information)

Facility **KGSA- DAHLGREN WASTEWATER TREATMENT PLANT**
NPDES# **VA0026514**
Address **16383 Dahlgren Rd King George, Virginia 22485**

County **King George County** Pipe/Outfall/Location **001 / Lower Williams Creek**
Flow Type (Circle One): Continuous Intermittent Batch Stormwater Other: _____
Instream Waste Conc _____

Type of sample :

_____(Grab): Date _____ Time _____ Amount of Sample Collected _____
X (Time Composite): Collected from (Date/Time): **6:00 AM May 14, 2012**
To (Date/Time): **6:00 AM May 15, 2012**
Number/Volume of Subsamples: **150 mL** Time Increment : **15 min** Total Amount Collected: **9000 mL**
_____(Flow-Proportional Composite:): Collected from (Date/Time): _____
To (Date/Time): _____
Set Volume Subsample/Volume Flow: _____ Total Amount Collected: _____
For variable volume subsamples based on flow/set time Increments --Attach sample and flow information.
Sample collected by: (print) _____ Affiliation: _____
(sign) _____
*Temperature of sample in sample collection device **2.0/6.5 °C**
*Final temperature of effluent at sample collection point **21.1 °C**
*Is sample collection device chilled ? **YES** Is sample packed on ice for shipment ? **YES**
***It is required that all samples remain at 0-6°C during collection period and shipment for data to be accepted by the appropriate Regulatory Agency (Do not freeze!)**
Is the sample chlorinated? **NO** dechlorinated ? **NO** If so, how ? _____
Permit with interim chlorine limt ? **NA** If yes- limit (mg/L) **NA**
Field pH **7.66** Field Total Residual Chlorine **NA** Time: _____
Name of Analyst : **Daniel L. Powell** Affiliation : **Lead Operator**
Comments/Sample description **Dahlgren WWTP Final Effluent 24hr composite 3.5 gal**
Method of Shipment: **Driven to lab w/ County Vehicle**
Shipment Date / Time: **May 15, 2012**
Type of test(s) to be performed **7- Day Chronic / Toxicity Test**
(Specify organisms) **Mysidopsis Bahia and Cyprinodon Variegatus**

PRINT & SIGN NAMES

Relinquished by print **Daniel L. Powell** /sign Daniel L Powell Date/Time **5/15/12 7:00 am**
Received by print **David Miller** /sign _____ Date/Time **5/15/12 7:00 am**
Relinquished by print **David Miller** /sign _____ Date/Time **5/15/12** 7:26 AM
Received by print **Jeff Hockaday** /sign _____ Date/Time **5/15/12** 7:26 AM
Relinquished by print **Jeff Hockaday** /sign _____ Date/Time **5/15/12** 9:17 AM
Received by print Mendy Hall /sign _____ Date/Time **5/15/12** 9:35

EFFLUENT CONDITION UPON ARRIVAL AT LABORATORY

JRA # 120149bA Arrival Temperature 7.2°C Date : 5/15/12 Time: 9:35 Ice Present: (Yes) / No
Sample Volume: 3.5Ga Color Light brown Odor Some Solids some pH 7.85 DO (mg/L) 10.4
Conductivity (µmhos/cm) 613 @ 25.2 °C Salinity (ppt) < 1 TRC (mg/L) < 0.02
Method (For TRC) HACH8167 Analyst: _____

Rev. 6/04

Toxicity Test Sample Chain of Custody

(Please complete all information)

Facility **KGSA- DAHLGREN WASTEWATER TREATMENT PLANT**
NPDES# **VA0026514**
Address **16383 Dahlgren Rd King George, Virginia 22485**

County **King George County** Pipe/Outfall/Location **001 / Lower Williams Creek**
Flow Type (Circle One): Continuous Intermittent Batch Stormwater Other: _____
Instream Waste Conc _____
Type of sample :
_____(Grab): Date _____ Time _____ Amount of Sample Collected_____
X (Time Composite): Collected from (Date/Time): **6:00 AM May 16, 2012**
To (Date/Time): **6:00 AM May 17, 2012**
Number/Volume of Subsamples: **150 mL** Time Increment : **15 min** Total Amount Collected: **9000 mL**
_____(Flow-Proportional Composite:): Collected from (Date/Time): _____
To (Date/Time): _____
Set Volume Subsample/Volume Flow: _____ Total Amount Collected: _____
For variable volume subsamples based on flow/set time Increments --Attach sample and flow information.
Sample collected by: (print) _____ Affiliation: _____
(sign) _____
*Temperature of sample in sample collection device **5.7/11.3 °C**
*Final temperature of effluent at sample collection point **21.8 °C**
*Is sample collection device chilled ? **YES** Is sample packed on ice for shipment ? **YES**
***It is required that all samples remain at 0-6°C during collection period and shipment for data to be accepted by the appropriate Regulatory Agency (Do not freeze!)**
Is the sample chlorinated? **NO** dechlorinated ? **NO** If so, how ? _____
Permit with interim chlorine limt ? **NA** If yes- limit (mg/L) **NA**
Field pH **7.67** Field Total Residual Chlorine **NA** Time: _____
Name of Analyst : **Daniel L. Powell** Affiliation : **Lead Operator**
Comments/Sample description **Dahlgren WWTP Final Effluent 24hr composite 2.5 gal**
Method of Shipment: **Driven to lab w/ County Vehicle**
Shipment Date / Time: **May 17, 2012**
Type of test(s) to be performed **7- Day Chronic / Toxicity Test**
(Specify organisms) **Mysidopsis Bahia and Cyprinodon Variegatus**

PRINT & SIGN NAMES

Relinquished by print **Daniel L. Powell** /sign Daniel L Powell Date/Time **5/17/12 6:40 am**
Received by print **Robert Warner** /sign Robert L Warner Date/Time **5/17/12 6:40 am**
Relinquished by print **Robert Warner** /sign Robert L Warner Date/Time **5/17/12** 9:15
Received by print Mendy Hall /sign Mendy Hall Date/Time **5/17/12** 9:15
Relinquished by print _____ /sign _____ Date/Time _____
Received by print _____ /sign _____ Date/Time _____

EFFLUENT CONDITION UPON ARRIVAL AT LABORATORY

JRA # 12 D0496 B Arrival Temperature 0.2 °C Date : 5-17-12 Time: 9:15 Ice Present: (Yes) / No
Sample Volume: 2.5 Gal Color Light brown Odor some Solids some pH 7.73 DO (mg/L) 9.7
Conductivity (µmhos/cm) 520 @ 25.2 °C Salinity (ppt) <1 TRC (mg/L) <0.02
Method (For TRC) HACH8167 Analyst: _____

Rev. 6/04

Toxicity Test Sample Chain of Custody

(Please complete all information)

Facility **KGSA- DAHLGREN WASTEWATER TREATMENT PLANT**
NPDES# **VA0026514**
Address **16383 Dahlgren Rd King George, Virginia 22485**

County **King George County** Pipe/Outfall/Location **001 / Lower Williams Creek**
Flow Type (Circle One): (Continuous) Intermittent Batch Stormwater Other: _____
Instream Waste Conc _____
Type of sample :
_____(Grab): Date _____ Time _____ Amount of Sample Collected_____
X (Time Composite): Collected from (Date/Time): **6:00 AM May 18, 2012**
To (Date/Time): **6:00 AM May 19, 2012**
Number/Volume of Subsamples: **150 mL** Time Increment : **15 min** Total Amount Collected: **9000 mL**
_____(Flow-Proportional Composite:): Collected from (Date/Time): _____
To (Date/Time): _____
Set Volume Subsample/Volume Flow: _____ Total Amount Collected: _____
For variable volume subsamples based on flow/set time Increments --Attach sample and flow information.
Sample collected by: (print) _____ Affiliation: _____
(sign) _____
*Temperature of sample in sample collection device **3.0/8.9 °C**
*Final temperature of effluent at sample collection point **21.8 °C**
*Is sample collection device chilled ? **YES** Is sample packed on ice for shipment ? **YES**
***It is required that all samples remain at 0-6°C during collection period and shipment for data to be accepted by the appropriate Regulatory Agency (Do not freeze!)**
Is the sample chlorinated? **NO** dechlorinated ? **NO** If so, how ? _____
Permit with interim chlorine limt ? **NA** If yes- limit (mg/L) **NA**
Field pH **7.73** Field Total Residual Chlorine **NA** Time: _____
Name of Analyst : **Daniel L. Powell** Affiliation : **Lead Operator**
Comments/Sample description **Dahlgren WWTP Final Effluent 24hr composite 2.5 gal**
Method of Shipment: **Driven to lab w/ County Vehicle**
Shipment Date / Time: **May 19, 2012**
Type of test(s) to be performed **7- Day Chronic / Toxicity Test**
(Specify organisms) **Mysidopsis Bahia and Cyprinodon Variegatus**

PRINT & SIGN NAMES

Relinquished by print **Daniel L. Powell** /sign _____ Date/Time **5/19/12**
Received by print _____ /sign _____ Date/Time **5/19/12**
Relinquished by print _____ /sign _____ Date/Time _____
Received by print _____ /sign _____ Date/Time _____
Relinquished by print _____ /sign _____ Date/Time _____
Received by print Kelin /sign Kelin Date/Time 5/19/12 @ 830

EFFLUENT CONDITION UPON ARRIVAL AT LABORATORY

JRA # 12-0749C Arrival Temperature 1.6 °C Date : 5/19/12 Time: 830 Ice Present: (Yes) / No
Sample Volume: 2.5 Color Light brown Odor Some Solids Some pH 7.70 DO (mg/L) 9.9
Conductivity (µmhos/cm) 534 @ 25.3 °C Salinity (ppt) <1 TRC (mg/L) <0.02
Method (For TRC) HACH8167 Analyst: _____

	Test number:_____	Test number:_____	Test number:_____
e. Describe the point in the treatment process at which the sample was collected.			
Sample was collected:			
f. For each test, include whether the test was intended to assess chronic toxicity, acute toxicity, or both.			
Chronic toxicity			
Acute toxicity			
g. Provide the type of test performed.			
Static			
Static-renewal			
Flow-through			
h. Source of dilution water. If laboratory water, specify type; if receiving water, specify source.			
Laboratory water			
Receiving water			
i. Type of dilution water. It salt water, specify "natural" or type of artificial sea salts or brine used.			
Fresh water			
Salt water			
j. Give the percentage effluent used for all concentrations in the test series.			
k. Parameters measured during the test. (State whether parameter meets test method specifications)			
pH			
Salinity			
Temperature			
Ammonia			
Dissolved oxygen			
l. Test Results.			
Acute:			
Percent survival in 100% effluent	%	%	%
LC_{50}			
95% C.I.	%	%	%
Control percent survival	%	%	%
Other (describe)			

Chronic:			
NOEC	%	%	%
IC_{25}	%	%	%
Control percent survival	%	%	%
Other (describe)			
m. Quality Control/Quality Assurance.			
Is reference toxicant data available?			
Was reference toxicant test within acceptable bounds?			
What date was reference toxicant test run (MM/DD/YYYY)?			
Other (describe)			

E.3. Toxicity Reduction Evaluation. Is the treatment works involved in a Toxicity Reduction Evaluation?

____Yes____No If yes, describe: _____

_____

_____

E.4. Summary of Submitted Biomonitoring Test Information. If you have submitted biomonitoring test information, or information regarding the cause of toxicity, within the past four and one-half years, provide the dates the information was submitted to the permitting authority and a summary of the results.

Date submitted: _____ (MM/DD/YYYY)

Summary of results: (see instructions)

_____

_____

END OF PART E.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE.

SUPPLEMENTAL APPLICATION INFORMATION

PART F. INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES N/A

All treatment works receiving discharges from significant industrial users or which receive RCRA, CERCLA, or other remedial wastes must complete Part F.

GENERAL INFORMATION:

F.1. Pretreatment Program. Does the treatment works have, or is it subject to, an approved pretreatment program?

____Yes____No

F.2. Number of Significant Industrial Users (SIUs) and Categorical Industrial Users (CIUs). Provide the number of each of the following types of industrial users that discharge to the treatment works.

a. Number of non-categorical SIUs. _____

b. Number of CIUs. _____

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: _____

Mailing Address: _____

_____

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

_____

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): _____

Raw material(s): _____

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

_____ gpd (_____continuous or _____intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

_____ gpd (_____continuous or _____intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits ____Yes ____No

b. Categorical pretreatment standards ____Yes ____No

If subject to categorical pretreatment standards, which category and subcategory?

_____

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

____Yes____No If yes, describe each episode.

_____

_____

RCRA HAZARDOUS WASTE RECEIVED BY TRUCK, RAIL, OR DEDICATED PIPELINE:

F.9. RCRA Waste. Does the treatment works receive or has it in the past three years received RCRA hazardous waste by truck, rail, or dedicated pipe? ____Yes ___No (go to F.12.)

F.10. Waste Transport. Method by which RCRA waste is received (check all that apply):

_____Truck _____Rail _____Dedicated Pipe

F.11. Waste Description. Give EPA hazardous waste number and amount (volume or mass, specify units).

EPA Hazardous Waste Number	Amount	Units
_____	_____	_____
_____	_____	_____
_____	_____	_____

CERCLA (SUPERFUND) WASTEWATER, RCRA REMEDIATION/CORRECTIVE ACTION WASTEWATER, AND OTHER REMEDIAL ACTIVITY WASTEWATER:

F.12. Remediation Waste. Does the treatment works currently (or has it been notified that it will) receive waste from remedial activities?

____Yes (complete F.13 through F.15.) ____No

Provide a list of sites and the requested information (F.13 - F.15.) for each current and future site.

F.13. Waste Origin. Describe the site and type of facility at which the CERCLA/RCRA/or other remedial waste originates (or is expected to originate in the next five years).

_____

_____

_____

F.14. Pollutants. List the hazardous constituents that are received (or are expected to be received). Include data on volume and concentration, if known. (Attach additional sheets if necessary).

_____

_____

F.15. Waste Treatment.

a. Is this waste treated (or will it be treated) prior to entering the treatment works?

____Yes ____No

If yes, describe the treatment (provide information about the removal efficiency):

_____

_____

b. Is the discharge (or will the discharge be) continuous or intermittent?

____Continuous ____Intermittent If intermittent, describe discharge schedule.

_____

END OF PART F.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

SUPPLEMENTAL APPLICATION INFORMATION

PART G. COMBINED SEWER SYSTEMS

N/A

If the treatment works has a combined sewer system, complete Part G.

G.1. System Map. Provide a map indicating the following: (may be included with Basic Application Information)

a. All CSO discharge points.

b. Sensitive use areas potentially affected by CSOs (e.g., beaches, drinking water supplies, shellfish beds, sensitive aquatic ecosystems, and outstanding natural resource waters).

c. Waters that support threatened and endangered species potentially affected by CSOs.

G.2. System Diagram. Provide a diagram, either in the map provided in G.1. or on a separate drawing, of the combined sewer collection system that includes the following information:

a. Locations of major sewer trunk lines, both combined and separate sanitary.

b. Locations of points where separate sanitary sewers feed into the combined sewer system.

c. Locations of in-line and off-line storage structures.

d. Locations of flow-regulating devices.

e. Locations of pump stations.

CSO OUTFALLS:

Complete questions G.3 through G.6 once for each CSO discharge point.

G.3. Description of Outfall.

a. Outfall number _____

b. Location _____
(City or town, if applicable) (Zip Code)

_____
(County) (State)

_____
(Latitude) (Longitude)

c. Distance from shore (if applicable) _____ft.

d. Depth below surface (if applicable) _____ft.

e. Which of the following were monitored during the last year for this CSO?

____Rainfall ____CSO pollutant concentrations CSO frequency

____CSO flow volume ____Receiving water quality

f. How many storm events were monitored during the last year? _____

G.4. CSO Events.

a. Give the number of CSO events in the last year.

_____ events (___ actual or ___ approx.)

b. Give the average duration per CSO event.

_____ hours (____ actual or ____ approx.)

c. Give the average volume per CSO event.

_____ million gallons (_____ actual or _____ approx.)

d. Give the minimum rainfall that caused a CSO event in the last year.

_____ inches of rainfall

G.5. Description of Receiving Waters.

a. Name of receiving water: _____

b. Name of watershed/river/stream system:_____

United States Soil Conservation Service 14-digit watershed code (if known): _____

c. Name of State Management/River Basin: _____

United States Geological Survey 8-digit hydrologic cataloging unit code (if known): _____

G.6. CSO Operations.

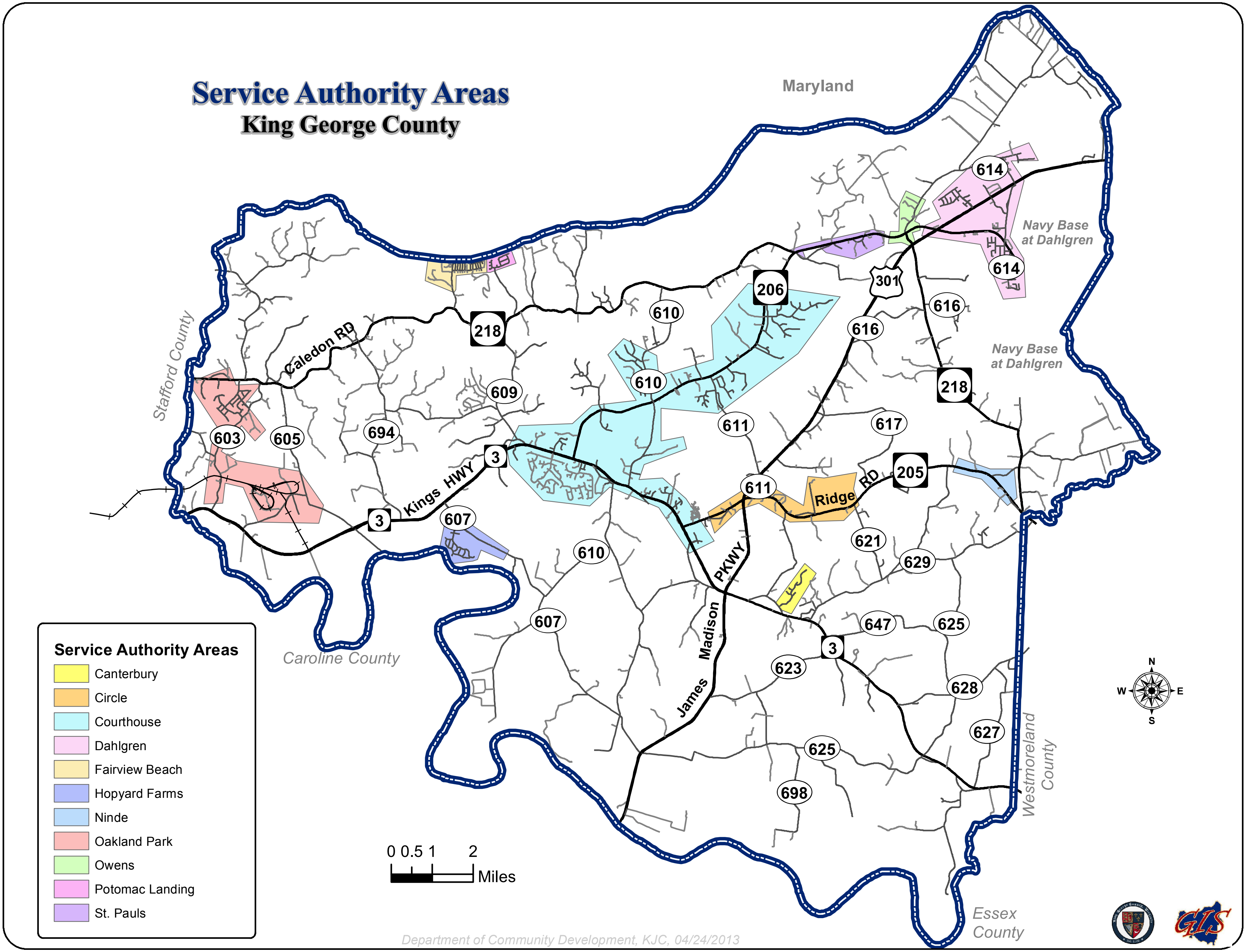
Describe any known water quality impacts on the receiving water caused by this CSO (e.g., permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

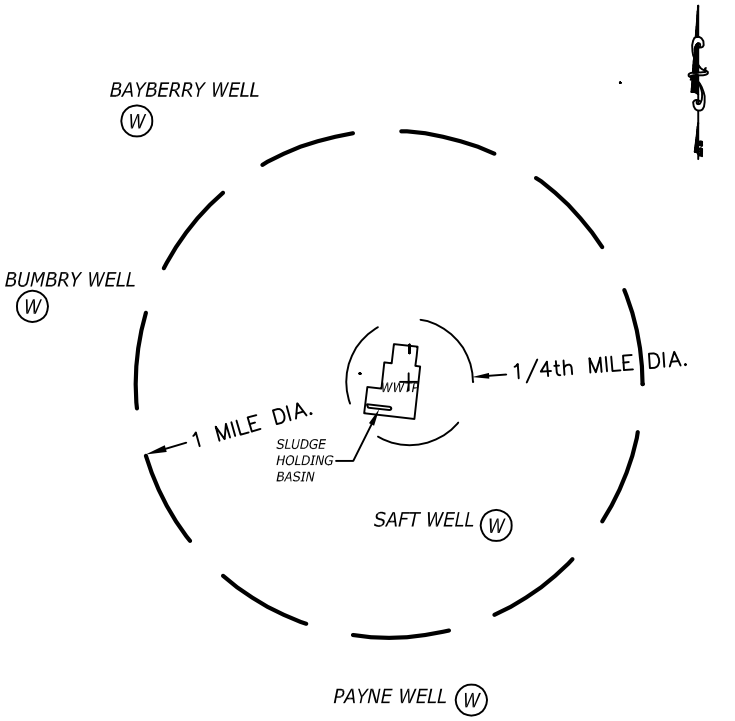
_____

_____

END OF PART G.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE.

Additional information, if provided, will appear on the following pages.


Service Authority Areas
King George County
Maryland
Stafford County
Caroline County
Westmoreland County
Essex County
Navy Base at Dahlgren
Navy Base at Dahlgren
Caledon RD
Kings HWY
James Madison PKWY
Ridge RD
218
206
301
205
3
614
616
610
609
611
617
603
605
694
607
621
629
647
625
623
628
627
698
Service Authority Areas
Canterbury
Circle
Courthouse
Dahlgren
Fairview Beach
Hopyard Farms
Ninde
Oakland Park
Owens
Potomac Landing
St. Pauls
0 0.5 1 2
Miles
N
W
E
S
Department of Community Development, KJC, 04/24/2013



JOB NO. 24436	DAHLGREN WWTP VPDES PERMIT KING GEORGE, VA	SCALE 1" = 1100'	DATE DATE	DATE 07/15/13	
SHEET NO. F	TOPOGRAPHIC MAP	CHECKED BY IM	DRAWN BY MCP	DESIGNED BY MCP	

LEGEND

FE	=	FINAL EFFLUENT
ML	=	MIXED LIQUOR
PE	=	PRIMARY EFFLUENT
RAS	=	RETURNED ACTIVATED SLUDGE
RS	=	RAW SEWAGE
SE	=	SECONDARY EFFLUENT
VFD'S	=	VARIABLE FREQUENCY DRIVES
WAS	=	WASTE ACTIVATED SLUDGE

F.E.

THE FINAL EFFLUENT IS PUMPED TO WILLIAMS CREEK

METER

EFF. PUMPS

POST AERATION

UV DISINFECTION

FILTERS

SEPTIC TANKER

CAUSTIC

CHEMICAL BUILDING

POLYMER/ALUM

SEPTAGE RECEIVING UNIT

EQUALIZATION BASIN

PE

INFLUENT PUMPS

PE

OXIDATION DITCH

ML

SPLITTER BOX

CLARIFIER #1

SE

RAS/WAS

CLARIFIER #2

SE

RAS/WAS

RAS/WAS PUMPING STATION

WAS

RAS/WAS

RAS

EMERGENCY BYPASS

HEAD WORKS

ADMIN OFFICE/ CONTROL BUILDING

DIG #1

DIG #2

DIG #3

DIG #4

AEROBIC DIGESTERS

THICKENED SLUDGE

RAW SEWAGE

METER

SLUDGE HOLDING #1

SLUDGE HOLDING #2

SLUDGE TO LANDFILL

BELT FILTER PRESS

WAS

PLANT DRAIN

PLANT PS

PLANT DRAIN

THIS DRAWING PREPARED BY
RETAW ENGINEERING
2903 Sagecreek Circle | Midlothian, VA 23112
TEL 804.744.1792 FAX 804.545.0075 www.retaweng.com

PLANNING | PERMITTING | DESIGN | OPERATIONS

REVISION DESCRIPTION

DATE

DATE 10/17/07

DRAWN BY MITUL C. PATEL

DESIGNED BY I. MUTOTI

CHECKED BY I. MUTOTI

SCALE NTS

RETAW ENGINEERING

DAHLGREN WWTP ENR INSTRUMENTATION

KING GEORGE SERVICE AUTHORITY

PROCESS FLOW DIAGRAM

JOB NO. 40933-34

SHEET NO. PER-02

LEGEND

ORP	EXISTING OXIDATION/REDUCTION POTENTIAL ANALYZER
DO	EXISTING DISSOLVED OXYGEN ANALYZER
C	EXISTING CARBON APPLICATION POINT
MLSS	PROPOSED MIXED LIQUOR SUSPENDED SOLIDS ANALYZER
NO_3^-	PROPOSED NITRATE ANALYZER
NH_3	PROPOSED AMMONIA ANALYZER
P	PROPOSED PHOSPHORUS ANALYZER

SLUDGE HOLDING (SEE NOTES)

NEW EQUALIZATION BASIN

CLARIFIER 1

CLARIFIER 2

RAS/WAS PUMP STATION

CHEMICAL BUILDING

EXISTING OXIDATION DITCH

ORP

DO

C

MLSS

NO_3^-

NH_3

P

OLD CLARIFIER "B"

OLD CLARIFIER "A"

DIGESTER

EFFLUENT PUMP STATION

FILTER BLDG.

PLANT PUMP STATION

PRIMARY AEROBIC DIGESTER

PRIMARY AEROBIC DIGESTER

PRIMARY AEROBIC DIGESTER

AEROBIC DIGESTER

AEROBIC DIGESTER

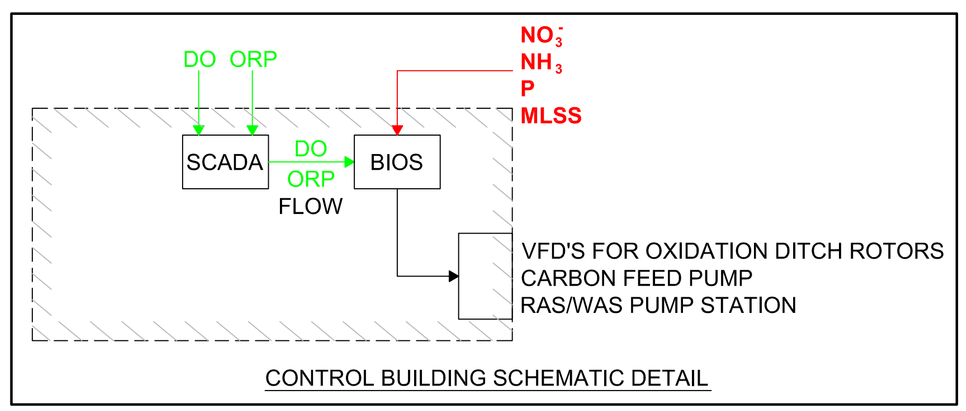
PRESS BLDG.

EX. GRAVEL DRIVE

EXISTING CONTROL BUILDING (SEE DETAIL BELOW)

MOLASSES (CARBON) FEED TANK

4:1



CONTROL BUILDING SCHEMATIC DETAIL

THIS DRAWING PREPARED BY
RETAW ENGINEERING
2903 Sagecreek Circle | Midlothian, VA 23112
TEL 804.744.1792 FAX 804.545.0075 www.retaweng.com

PLANNING | PERMITTING | DESIGN | OPERATIONS

DATE	REVISION DESCRIPTION

DATE: 02/01/12
DRAWN BY: MITUL C. PATEL
DESIGNED BY: I. MUTOTI
CHECKED BY: I. MUTOTI
SCALE: NTS

RETAW ENGINEERING LLC

DAHLGREN WWTP ENR INSTRUMENTATION

KING GEORGE SERVICE AUTHORITY

OVERALL SITE PLAN

JOB NO. 40933-34

SHEET NO. PER-01

VPDES Permit Application Addendum

1. **Entity to whom the permit is to be issued**: KING GEORGE COUNTY SERVICE AUTHORITY

Who will be legally responsible for the wastewater treatment facilities and compliance with the permit? This may or may not be the facility or property owner.

2. **Is this facility located within city or town boundaries?** Yes ☐ No ☒

3. **Provide the tax map parcel number for the land where the discharge is located.** 9–88B

4. **For the facility to be covered by this permit, how many acres will be disturbed during the next five years due to new construction activities?** **zero**

5. **What is the design average effluent flow of this facility?** 1**.0** MGD

For industrial facilities, provide the max. 30-day average production level, include units:

In addition to the design flow or production level, should the permit be written with limits for any other discharge flow tiers or production levels? Yes ☒ No ☐ If "Yes", please identify the other flow tiers (in MGD) or production levels:

0.97 MGD . The 1.0 MGD Tier is to be eliminated and Permit modified for 0.97 MGD ONLY

Please consider the following questions for both the flow tiers and the production levels (if applicable): Do you plan to expand operations during the next five years? Is your facility's design flow considerably greater than your current flow?

6. **Nature of operations generating wastewater**:

Domestic uses, schools, and commercial – hotels, business centers, shopping center

90 % of flow from domestic connections/sources

Number of private residences to be served by the treatment works: **2057**

10 % of flow from non-domestic connections/sources

7. **Mode of discharge**: ☒ Continuous ☐ Intermittent ☐ Seasonal

Describe frequency and duration of intermittent or seasonal discharges:

8. **Identify the characteristics of the receiving stream at the point just above the facility's discharge point:**

X Permanent stream, never dry

____ Intermittent stream, usually flowing, sometimes dry

____ Ephemeral stream, wet-weather flow, often dry

____ Effluent-dependent stream, usually or always dry without effluent flow

____ Lake or pond at or below the discharge point

____ Other:

9. **Approval Date(s**

O & M Manual May 17, 2006 **Sludge/Solids Management Plan** JANUARY 2005

Have there been any changes in your operations or procedures since the above approval dates? Yes ☒ No ☐

FACILITY NAME: DAHLGREN WASTEWATER TREATMENT PLANT VPDES PERMIT NUMBER: VA0026514

VPDES SEWAGE SLUDGE PERMIT APPLICATION FORM

SCREENING INFORMATION

This application is divided into four sections. Section A pertains to all applicants. The applicability of Sections B, C and D depends on your facility's sewage sludge use or disposal practices. The information provided on this page will help you determine which sections to fill out.

1. All applicants must complete Section A (General Information).

2. Does this facility generate sewage sludge? __**X**___ Yes _____ No

   Does this facility derive a material from sewage sludge? _____ Yes __**X**___ No

   If you answered "Yes" to either, complete Section B (Generation Of Sewage Sludge or Preparation Of A Material Derived From Sewage Sludge).

3. Does this facility apply sewage sludge to the land? _____ Yes __**X**___ No

   Is sewage sludge from this facility applied to the land? _____ Yes __**X**___ No

   If you answer "No" to all above, skip Section C.

   If you answered "Yes" to either, answer the following three questions:

   a. Does the sewage sludge from this facility meet the ceiling concentrations, pollutant concentrations, Class A pathogen reduction requirements and one of the vector attraction reduction requirements 1-8, as identified in the instructions? _____ Yes _____ No

   b. Is sewage sludge from this facility placed in a bag or other container for sale or give-away for application to the land? _____ Yes _____ No

   c. Is sewage sludge from this facility sent to another facility for treatment or blending? _____ Yes _____ No

   If you answered "No" to all three, complete Section C (Land Application Of Bulk Sewage Sludge).

   If you answered "Yes" to a, b or c, skip Section C.

4. Do you own or operate a surface disposal site? _____ Yes __**X**___ No

   If "Yes", complete Section D (Surface Disposal).

SECTION A. GENERAL INFORMATION

All applicants must complete this section.

1. Facility Information.

a. Facility name: **DAHLGREN WASTEWATER TREATMENT PLANT**

b. Contact person: **Christopher F. Thomas P.E**

Title: **General Manager**

Phone: **(540) 775-2746**

c. Mailing address:

Street or P.O. Box: **9207 Kings Highway**

City or Town: **King George** State: **VA** Zip: **22485**

d. Facility location:

Street or Route #: **16383 Dahlgren Road**

County: **King George**

City or Town: **King George** State: **VA** Zip: **22485**

e. Is this facility a Class I sludge management facility? _____ Yes __**X**___ No

f. Facility design flow rate: Current: 1.0 MGD. To be Modified to **0.97 MGD**

g. Total population served: **5,680 people – Est. 2,230 Equivalent Residential Connections**

h. Indicate the type of facility:

__**X**__ Publicly owned treatment works (POTW)

_____ Privately owned treatment works

_____ Federally owned treatment works

_____ Blending or treatment operation

_____ Surface disposal site

_____ Other (describe): _____

2. Applicant Information. If the applicant is different from the above, provide the following:

a. Applicant name: **King George County Service Authority**

b. Mailing address:

Street or P.O. Box: **9207 Kings Highway**

City or Town: **King George** State: **VA** Zip: **22485**

c. Contact person: **Christopher F. Thomas**

Title: **General Manager**

Phone: **(540) 775-2746**

d. Is the applicant the owner or operator (or both) of this facility?
__**X**___ owner __**X**___ operator

e. Should correspondence regarding this permit be directed to the facility or the applicant?
_____ facility ___**X**__ applicant

3. Permit Information.

a. Facility's VPDES permit number (if applicable): __**VA0026514**

b. List on this form or an attachment, all other federal, state or local permits or construction approvals received or applied for that regulate this facility's sewage sludge management practices:

Permit Number:	Type of Permit:
VDH-RAHD-12	Sewage Handling Permit **VA0026514**

4. Indian Country. Does any generation, treatment, storage, application to land or disposal of sewage sludge from this facility occur in Indian Country? _____ Yes __**X**___ No If "Yes", describe:

5. **Topographic Map.** Provide a topographic map or maps (or other appropriate maps if a topographic map is unavailable) that shows the following information. Maps should include the area one mile beyond all property boundaries of the facility
   See FIGURE 1 – TOPOGRAPHIC MAP
   a. Location of all sewage sludge management facilities, including locations where sewage sludge is generated, stored, treated, or disposed.
   b. Location of all wells, springs, and other surface water bodies listed in public records or otherwise known to the applicant within 1/4 mile of the property boundaries.

6. **Line Drawing.** Provide a line drawing and/or a narrative description that identifies all sewage sludge processes that will be employed during the term of the permit including all processes used for collecting, dewatering, storing, or treating sewage sludge, the destination(s) of all liquids and solids leaving each unit, and all methods used for pathogen reduction and vector attraction reduction. **– See Figure 4 –PROCESS FLOW DIAGRAM**

7. **Contractor Information.** Are any operational or maintenance aspects of this facility related to sewage sludge generation, treatment, use or disposal the responsibility of a contractor? __**X**___ Yes _____ No

   If "Yes", provide the following for each contractor (attach additional pages if necessary).

   Name: **WASTE MANAGEMENT**

   Mailing address:

   Street or P.O. Box: **45 Utah Place**

   City or Town: **Falmouth** State: **VA** Zip: **22485**

   Phone: **(800) 969-2069**

   Contractor's Federal, State or Local Permit Number(s) applicable to this facility's sewage sludge:

   VIRGINIA Department of Environmental Quality Permit # for King George Landfill: 586

   If the contractor is responsible for the use and/or disposal of the sewage sludge, provide a description of the service to be provided to the applicant and the respective obligations of the applicant and the contractor(s).

8. **Pollutant Concentrations.** Using the table below or a separate attachment, provide sewage sludge monitoring data for the pollutants which limits in sewage sludge have been established in 9 VAC 25-31-10 et seq. for this facility's expected use or disposal practices. All data must be based on three or more samples taken at least one month apart and must be no more than four and one-half years old**. [SEE ATTACHMENT B – BELT PRESS CAKE REPORT OF ANALYSIS]**

POLLUTANT	CONCENTRATION (mg/kg dry weight)	SAMPLE DATE	ANALYTICAL METHOD	DETECTION LEVEL FOR ANALYSIS
Arsenic				
Cadmium				
Chromium				
Copper				
Lead				
Mercury				
Molybdenum				
Nickel				
Selenium				
Zinc				

SEE ATTACHMENT C – BELT FILTER PRESS SLUDGE CAKE TESTING NEXT PAGE

Enviro Compliance Laboratories, Inc.
10357 Old Keeton Road
Ashland, Virginia 23005-8110
(804)550-3971
Fax: (804)550-3826
www.envirocompliance.com
email: labdirector@envirocompliance.com

Analytical Summary

King George Service Authority
Attn: Jeff Hockaday
10459 Courthouse Drive
King George, VA 22485

Project Name : Dahlgren WWTP
Date Received: June 14, 2012
Date Issued : June 29, 2012

Lab # 1(A-B)/Sample ID : Beltpress sludge cake
Sampled: June 14, 2012 10:45

Parameter	Result	Units	QL	Date/Time Prepared	Date/Time Analyzed	Method	Analyst
Trichloroethene	BQL	ug/l	5.00	06-22/0830	06-22/1630	1311	ECL-H
Benzene	BQL	ug/l	5.00	06-22/0830	06-22/1630	1311	ECL-H
Tetrachloroethene	BQL	ug/l	5.00	06-22/0830	06-22/1630	1311	ECL-H
Chlorobenzene	BQL	ug/l	5.00	06-22/0830	06-22/1630	1311	ECL-H
1,4-Dichlorobenzene	BQL	ug/l	10.00	06-22/0830	06-22/1630	1311	ECL-H
Methyl ethyl ketone	BQL	ug/l	50.00	06-22/0830	06-22/1630	1311	ECL-H
PCB as Arochlor 1221	BQL	mg/kg	1.0	06-25/0830	06-25/1630	8082	ECL-H
PCB as Arochlor 1232	BQL	mg/kg	1.30	06-25/0830	06-25/1630	8082	ECL-H
PCB as Arochlor 1242	BQL	mg/kg	1.0	06-25/0830	06-25/1630	8082	ECL-H
PCB as Arochlor 1016	BQL	mg/kg	1.0	06-25/0830	06-25/1630	8082	ECL-H
PCB as Arochlor 1248	BQL	mg/kg	1.0	06-25/0830	06-25/1630	8082	ECL-H
PCB as Arochlor 1254	BQL	mg/kg	1.0	06-25/0830	06-25/1630	8082	ECL-H
PCB as Arochlor 1260	BQL	mg/kg	1.0	06-25/0830	06-25/1630	8082	ECL-H

BQL = Below Quantitation Level
All data meets NELAC requirements unless otherwise noted.
* Sample was not analyzed within holding times.
sub* = Analysis was sub-contracted.

Greg L. Hudson
Laboratory Director

NELAP ACCREDITED TNI LABORATORY

VELAP ID#: 460032

Enviro Compliance Laboratories, Inc.
10357 Old Keeton Road
Ashland, Virginia 23005-8110
(804)550-3971
Fax: (804)550-3826
www.envirocompliance.com
email: labdirector@envirocompliance.com

Analytical Summary

King George Service Authority
Attn: Jeff Hockaday
10459 Courthouse Drive
King George, VA 22485

Project Name : Dahlgren WWTP
Date Received: June 14, 2012
Date Issued : June 29, 2012

Lab # 1(A-B)/Sample ID : Beltpress sludge cake
Sampled: June 14, 2012 10:45

Parameter	Result	Units	QL	Date/Time Prepared	Date/Time Analyzed	Method	Analyst
Paint Filter	BQL	ml/100g	1	06-21/1005	06-21/1039	9095	ECL-H
Corrosivity	Negative	mg/kg	--	06-21/0955	06-21/0955	7.2	ECL-H
pH HT	5.67	SU	--	>06-21/0955	06-21/0955	4500-H+B	ECL-H
TCLP Metals:						1311	
Arsenic	BQL	mg/l	.05	06-25/1000	06-25/1407	6020	ECL-H
Barium	BQL	mg/l	0.05	06-20/0935	06-27/1210	7000B	ECL-H
Cadmium	BQL	mg/l	0.05	06-25/1000	06-25/1407	6020	ECL-H
Chromium	BQL	mg/l	0.05	06-25/1000	06-25/1407	6020	ECL-H
Lead	BQL	mg/l	0.05	06-25/1000	06-25/1407	6020	ECL-H
Mercury	BQL	mg/l	.002	06-20/1300	06-20/1605	7471B	ECL-H
Selenium	BQL	mg/l	.05	06-25/1000	06-25/1407	6020	ECL-H
Silver	BQL	mg/l	.10	06-25/1000	06-25/1407	6020	ECL-H
TCLP Semi-volatiles						1311	
2,4,6-Trichlorophenol	BQL	ug/l	10.00	06-25/0830	06-25/1630	1311	ECL-H
Pentachlorophenol	BQL	ug/l	50.00	06-25/0830	06-25/1630	1311	ECL-H
o-Cresol	BQL	ug/l	10.00	06-25/0830	06-25/1630	1311	ECL-H
m-Cresol	BQL	ug/l	10.00	06-25/0830	06-25/1630	1311	ECL-H
p-Cresol	BQL	ug/l	10.00	06-25/0830	06-25/1630	1311	ECL-H
2,4,5-Trichlorophenol	BQL	ug/l	10.00	06-25/0830	06-25/1630	1311	ECL-H
Pyridine	BQL	ug/l	10.00	06-25/0830	06-25/1630	1311	ECL-H
Hexachloroethane	BQL	ug/l	10.00	06-25/0830	06-25/1630	1311	ECL-H
Nitrobenzene	BQL	ug/l	10.00	06-25/0830	06-25/1630	1311	ECL-H
Hexachlorobutadiene	BQL	ug/l	10.00	06-25/0830	06-25/1630	1311	ECL-H
2,4-Dinitrotoluene	BQL	ug/l	10.00	06-25/0830	06-25/1630	1311	ECL-H
Hexachlorbenzene	BQL	ug/l	10.00	06-25/0830	06-25/1630	6020	ECL-H
TCLP Volatiles						1311	
Vinyl chloride	BQL	ug/l	20.00	06-22/0830	06-22/1630	1311	ECL-H
1,1-Dichloroethene	BQL	ug/l	5.00	06-22/0830	06-22/1630	1311	ECL-H
Chloroform	BQL	ug/l	5.00	06-22/0830	06-22/1630	1311	ECL-H
1,2-Dichloroethane	BQL	ug/l	5.00	06-22/0830	06-22/1630	1311	ECL-H
Carbon tetrachloride	BQL	ug/l	5.00	06-22/0830	06-22/1630	1311	ECL-H

BQL = Below Quantitation Level
All data meets NELAC requirements unless otherwise noted.
* Sample was not analyzed within holding times.
sub* = Analysis was sub-contracted.

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www.envirocompliance.com
email: labdirector@envirocompliance.com

Analytical Summary

King George Service Authority
Attn: Jeff Hockaday
10459 Courthouse Drive
King George, VA 22485

Project Name : Dahlgren WWTP
Date Received: August 21, 2012
Date Issued : September 07, 2012

Lab # 1(A)/Sample ID : Sludge Cake
Sampled: August 21, 2012 11:40

Parameter	Result	Units	QL	Date/Time Prepared	Date/Time Analyzed	Method	Analyst
Oil and Grease	BQL	mg/l	5	09-05/1630	09-06/0945	1311/1664	ECL-H

BQL = Below Quantitation Level (Result is less than stated QL)
All data meets NELAC requirements unless otherwise noted.

Greg L. Hudson
Laboratory Director

NELAP ACCREDITED TNI LABORATORY
VELAP ID#: 460032

j:crtR2896895.pdf

9. **Certification.** Read and submit the following certification statement with this application. Refer to the instructions to determine who is an officer for purposes of this certification. Indicate which parts of the application you have completed and are submitting:

__X__ Section A (General Information)

__X__ Section B (Generation of Sewage Sludge or Preparation of a Material Derived from Sewage Sludge)

_____ Section C (Land Application of Bulk Sewage Sludge)

_____ Section D (Surface Disposal)

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Name and official title: **Christopher F. Thomas, PE, King George County Service Authority General Manager**

Signature Christopher F. Thomas Date Signed July 12, 2013

Telephone number: **(540) 775-2746**

Upon request of the department, you must submit any other information necessary to assess sewage sludge use or disposal practices at your facility or identify appropriate permitting requirements.

SECTION B. GENERATION OF SEWAGE SLUDGE OR PREPARATION OF A MATERIAL DERIVED FROM SEWAGE SLUDGE

Complete this section if your facility generates sewage sludge or derives a material from sewage sludge

1. Amount Generated On Site. (Note: sludge is combined with Sludge from other KGCSA owned Facilities at the Dahlgren wastewater treatment plant)

Total dry metric tons per 365-day period generated at your facility: **76** dry metric tons

2. Amount Received from Off Site. If your facility receives sewage sludge from another facility for treatment, use or disposal, provide the following information for each facility from which sewage sludge is received. If you receive sewage sludge from more than one facility, attach additional pages as necessary.

a. Facility name: **Fairview Beach, Purkins Corner, Oakland Park and Hopyard Farms WWTPs**

b. Contact Person: **Jeff Hockaday**

Title: **Wastewater Manager - King George County Service Authority**

Phone: **(540) -775 -2746**

c. Mailing address: 9207 KINGS HIGHWAY

Street or P.O. Box: **N/A**

City or Town: **KING GEORGE** State: VA Zip: **22485**

d. Facility locations: **Fairview Beach: 7152 Potomac Landing drive, King George | P**urkins Corner:_11224 Henry Griffins Road, King George, VA | Oakland Park: 1015 French Court, Oakland Park Subdivision, King George, VA | Hopyard Farms: State Road 607, South of Intersection of State Route 3 and 607, King George, VA 22485

e. Total dry metric tons per 365-day period received from this facility: **240** dry metric tons

f. Describe, on this form or on another sheet of paper, any treatment processes known to occur at the off-site facility, including blending activities and treatment to reduce pathogens or vector attraction characteristics:

Aerobic digestion / Sludge Holding prior to hauling

3. Treatment Provided at Your Facility.

a. Which class of pathogen reduction is achieved for the sewage sludge at your facility?
_____ Class A _____ Class B __**X**___ Neither or unknown

b. Describe, on this form or another sheet of paper, any treatment processes used at your facility to reduce pathogens in sewage sludge: Aerobic Digestion – prior dewatering using Belt Filter Press Disposed at the landfill

c. Which vector attraction reduction option is met for the sewage sludge at your facility?

_____ Option 1 (Minimum 38 percent reduction in volatile solids)

_____ Option 2 (Anaerobic process, with bench-scale demonstration)

_____ Option 3 (Aerobic process, with bench-scale demonstration)

_____ Option 4 (Specific oxygen uptake rate for aerobically digested sludge)

_____ Option 5 (Aerobic processes plus raised temperature)

_____ Option 6 (Raise pH to 12 and retain at 11.5)

_____ Option 7 (75 percent solids with no unstabilized solids)

_____ Option 8 (90 percent solids with unstabilized solids)

__**X**___ None or unknown

d. Describe, on this form or another sheet of paper, any treatment processes used at your facility to reduce vector attraction properties of sewage sludge: **N/A**

e. Describe, on this form or another sheet of paper, any other sewage sludge treatment activities, including blending, not identified in a - d above: **N/A**

4. Preparation of Sewage Sludge Meeting Ceiling and Pollutant Concentrations, Class A Pathogen Requirements and One of

Vector Attraction Reduction Options 1-8 (EQ Sludge).

(If sewage sludge from your facility does not meet all of these criteria, skip Question 4.)

a. Total dry metric tons per 365-day period of sewage sludge subject to this section that is applied to the land:

N/A_____ dry metric tons

b. Is sewage sludge subject to this section placed in bags or other containers for sale or give-away?
_____ Yes _____ No

5. Sale or Give-Away in a Bag or Other Container for Application to the Land.

(Complete this question if you place sewage sludge in a bag or other container for sale or give-away prior to land application. Skip this question if sewage sludge is covered in Question 4.)

a. Total dry metric tons per 365-day period of sewage sludge placed in a bag or other container at your facility for sale or give-away for application to the land: N/A_____ dry metric tons

b. Attach, with this application, a copy of all labels or notices that accompany the sewage sludge being sold or given away in a bag or other container for application to the land.

6. Shipment Off Site for Treatment or Blending.

(Complete this question if sewage sludge from your facility is sent to another facility that provides treatment or blending. This question does not apply to sewage sludge sent directly to a land application or surface disposal site. Skip this question if the sewage sludge is covered in Questions 4 or 5. If you send sewage sludge to more than one facility, attach additional sheets as necessary.)

a. Receiving facility name: **N/A**_____

b. Facility contact: _____

Title: _____

Phone: _____

c. Mailing address:

Street or P.O. Box: _____

City or Town: _____ State: __ Zip: _____

d. Total dry metric tons per 365-day period of sewage sludge provided to receiving facility:

___**N/A**_____ dry metric tons

e. List, on this form or an attachment, the receiving facility's VPDES permit number as well as the numbers of all other federal, state or local permits that regulate the receiving facility's sewage sludge use or disposal practices:

Permit Number:	Type of Permit:
VA0026514	VPDES Municipal _____**Major**_____

f. Does the receiving facility provide additional treatment to reduce pathogens in sewage sludge from your facility?
__**X**__ Yes _____ No

Which class of pathogen reduction is achieved for the sewage sludge at the receiving facility?
_____ Class A _____ Class B __**X**___ Neither or unknown

Describe, on this form or another sheet of paper, any treatment processes used at the receiving facility to reduce pathogens in sewage sludge: Aerobic Digestion_____

g. Does the receiving facility provide additional treatment to reduce vector attraction characteristics of the sewage sludge? __**X**___ Yes _____ No

Which vector attraction reduction option is met for the sewage sludge at the receiving facility?

__**X**___ Option 1 (Minimum 38 percent reduction in volatile solids)

_____ Option 2 (Anaerobic process, with bench-scale demonstration)

_____ Option 3 (Aerobic process, with bench-scale demonstration)

_____ Option 4 (Specific oxygen uptake rate for aerobically digested sludge)

_____ Option 5 (Aerobic processes plus raised temperature)

_____ Option 6 (Raise pH to 12 and retain at 11.5)

_____ Option 7 (75 percent solids with no unstabilized solids)

_____ Option 8 (90 percent solids with unstabilized solids)

_____ None unknown

Describe, on this form or another sheet of paper, any treatment processes used at the receiving facility to reduce vector attraction properties of sewage sludge:

Aerobic sludge digestion in 166,784 gallon digester volume at the 1.0 MGD Dahlgren WWTP at more than 40 days retention time resulting in greater than 40% volatile solids reduction at design capacity. The Dahlgren WWTP is currently operating at 25% its design capacity.

h. Does the receiving facility provide any additional treatment or blending not identified in f or g above?
_____ Yes __**X**___ No

If "Yes", describe, on this form or another sheet of paper, the treatment processes not identified in f or g above:

_____

_____

i. If you answered "Yes" to f, g or h above, attach a copy of any information you provide to the receiving facility to comply with the "notice and necessary information" requirement of 9 VAC 25-31-530.G.

j Does the receiving facility place sewage sludge from your facility in a bag or other container for sale or give-away for application to the land? _____ Yes __**X**___ No

If "Yes", provide a copy of all labels or notices that accompany the product being sold or given away.

k. Will the sewage sludge be transported to the receiving facility in a truck-mounted watertight tank normally used for such purposes? __ __ Yes ___**X**__ No. If "No", provide description and specification on the vehicle used to transport the sewage sludge to the receiving facility.

Show the haul route(s) on a location map or briefly describe the haul route below and indicate the days of the week and the times of the day sewage sludge will be transported:

7. Land Application of Bulk Sewage Sludge. N/A

(Complete Question 7.a if sewage sludge from your facility is applied to the land, unless the sewage sludge is covered in Questions 4, 5 or 6. Complete Question 7.b, c & d only if you are responsible for land application of sewage sludge.)

a. Total dry metric tons per 365-day period of sewage sludge applied to all land application sites:

__**N/A** _____ dry metric tons

b. Do you identify all land application sites in Section C of this application? _____ Yes _____ No

If "No", submit a copy of the Land Application Plan (LAP) with this application (LAP should be prepared in accordance with the instructions).

c. Are any land application sites located in States other than Virginia? _____ Yes _____ No

If "Yes", describe, on this form or on another sheet of paper, how you notify the permitting authority for the States where the land application sites are located. Provide a copy of the notification.

_____

_____

d. Attach a copy of any information you provide to the owner or lease holder of the land application sites to comply with the "notice and necessary" information requirement of 9 VAC 25-31-530 F and/or H (Examples may be obtained in Appendix IV).

8. Surface Disposal. N/A

(Complete Question 8 if sewage sludge from your facility is placed on a surface disposal site.)

a. Total dry metric tons per 365-day period of sewage sludge from your facility placed on all surface disposal sites: __**N/A** _____ dry metric tons

b. Do you own or operate all surface disposal sites to which you send sewage sludge for disposal?
_____ Yes _____ No

If "No", answer questions c - g for each surface disposal site that you do not own or operate. If you send sewage sludge to more than one surface disposal site, attach additional pages as necessary.

c. Site name or number: ____**N/A** _____

d. Contact person: __**N/A** _____

Title: _____**N/A**_____

Phone: _____**N/A** _____

Contact is: _____ Site Owner _____ Site operator

e. Mailing address:

Street or P.O. Box: N/A_____

f. Total dry metric tons per 365-day period of sewage sludge from your facility placed on this surface disposal site: **N/A**_____ dry metric tons

g. List, on this form or an attachment, the surface disposal site VPDES permit number as well as the numbers of all other federal, state or local permits that regulate the sewage sludge use or disposal practices at the surface disposal site:

Permit Number:	Type of Permit:
N/A_____	**N/A**_____
_____	_____

9. Incineration. N/A

(Complete Question 9 if sewage sludge from your facility is fired in a sewage sludge incinerator.)

a. Total dry metric tons per 365-day period of sewage sludge from your facility fired in a sewage sludge incinerator**: N/A**_____ dry metric tons

b. Do you own or operate all sewage sludge incinerators in which sewage sludge from your facility is fired?
_____ Yes _____ No

If "No", answer questions c - g for each sewage sludge incinerator that you do not own or operate. If you send sewage sludge to more than one sewage sludge incinerator, attach additional pages as necessary.

c. Incinerator name or number: **N/A**_____

d. Contact person: **N/A**_____

Title: **N/A**_____

Phone: **N/A**_____

Contact is: _____ Incinerator Owner _____ Incinerator Operator

e. Mailing address:

Street or P.O. Box: **N/A**_____

City or Town: **N/A**_____ State: N/A_____ Zip: **N/A**_____

f. Total dry metric tons per 365-day period of sewage sludge from your facility fired in this sewage sludge incinerator: **N/A**_____ dry metric tons

g. List on this form or an attachment the numbers of all other federal, state or local permits that regulate the firing

of sewage sludge at this incinerator:

Permit Number:	Type of Permit:
N/A	N/A

10. Disposal in a Municipal Solid Waste Landfill.

(Complete Question 10 if sewage sludge from your facility is placed on a municipal solid waste landfill. Provide the following information for each municipal solid waste landfill on which sewage sludge from your facility is placed. If sewage sludge is placed on more than one municipal solid waste landfill, attach additional pages as necessary.)

a. Landfill name: **King George County Landfill**

b. Contact person: **Jeff Jenkins**

Title: **Director of Sludge Waste**

Phone: **(540) 775-3123**

Contact is: __**X**___ Landfill Owner _____ Landfill Operator

c. Mailing address:

Street or P.O. Box: **10459 Courthouse Road, Suite 200**

City or Town: King George State: VA _____ Zip**: 22485**

d. Landfill location.

Street or Route #: **10376 Bullock Drive**

County: **King George**

City or Town: **King George** State: **VA** Zip: **22485**

e. Total dry metric tons per 365-day period of sewage sludge placed in this municipal solid waste landfill:

_____**124**__ dry metric tons (1,184 wet (~20% solids) tons for the period Jan 2009 – Nov 2010 – WM records)

f. List, on this form or an attachment, the numbers of all federal, state or local permits that regulate the operation of this municipal solid waste landfill:

Permit Number:	Type of Permit:
586	DEQ
5249	Waste Management Approval Code (King George Landfill)

g. Does sewage sludge meet applicable requirements in the Virginia Solid Waste Management Regulation, 9 VAC 20-80-10 et seq., concerning the quality of materials disposed in a municipal solid waste landfill?
___**X**__ Yes _____ No

h. Does the municipal solid waste landfill comply with all applicable criteria set forth in the Virginia Solid Waste Management Regulation, 9 VAC 20-80-10 et seq.? __**X**___ Yes _____ No

i. Will the vehicle bed or other container used to transport sewage sludge to the municipal solid waste landfill be watertight and covered? __**X**___ Yes _____ No

Show the haul route (s) on a location map or briefly describe the route below and indicate the days of the week and time of the day sewage sludge will be transported: See Sludge Management Plan (MAP for route, sludge is transported Mon-Fri 6 a.m. – 6 p.m.)

SECTION C. LAND APPLICATION OF BULK SEWAGE SLUDGE - N/A

Complete this section for sewage sludge that is land applied unless any of the following conditions apply:

- ***The sewage sludge meets the Table 1 ceiling concentrations, the Table 3 pollutant concentrations, Class A pathogen requirements and one of the vector attraction reduction options 1-8 (fill out B.4 instead) (EQ Sludge); or***
- ***The sewage sludge is sold or given away in a bag or other container for application to the land (fill out B.5 instead); or***
- ***You provide the sewage sludge to another facility for treatment or blending (fill out B.6 instead).***

Complete Section C for every site on which the sewage sludge that you reported in B.7 is land applied.

1. Identification of Land Application Site.

a. Site name or number: N/A_____

b. Site location (Complete i and ii)

i. Street or Route#: _____

County: _____

City or Town: _____ State: _____ Zip: _____

ii. Latitude: _____ Longitude: _____

Method of latitude/longitude determination
_____ USGS map _____ Filed survey _____ Other

c. Topographic map. Provide a topographic map (or other appropriate map if a topographic map is unavailable) that shows the site location.

2. Owner Information.

a. Are you the owner of this land application site? _____ Yes _____ No

b. If "No", provide the following information about the owner:

Name: _____

Street or P.O. Box: _____

City or Town: _____ State: _____ Zip: _____

Phone: (_____) _____

3. Applier Information:

a. Are you the person who applies, or who is responsible for application of, sewage sludge to this land application site?
_____ Yes _____ No

b. If "No", provide the following information for the person who applies the sewage sludge:

Name: _____

Street or P.O. Box: _____

City or Town: _____ State: _____ Zip: _____

Phone: (_____) _____

c. List, on this form or an attachment, the numbers of all federal, state or local permits that regulate the person who applies sewage sludge to this land application site:

Permit Number:	Type of Permit:
_____	_____
_____	_____

4. Site Type. Identify the type of land application site from among the following:

_____ Agricultural land _____ Reclamation site _____ Forest

_____ Public contact site _____ Other (describe _____

5. Vector Attraction Reduction.

Are any vector attraction reduction requirements met when sewage sludge is applied to the land application site?
_____ Yes _____ No If "Yes", answer a and b.

a. Indicate which vector attraction reduction option is met:

_____ Option 9 (Injection below land surface)

_____ Option 10 (Incorporation into soil within 6 hours)

b. Describe, on this form or on another sheet of paper, any treatment processes used at the land application site to reduce the vector attraction properties of sewage sludge:

_____

_____

6. Cumulative Loadings and Remaining Allotments.

(Complete Question 6 only if the sewage sludge applied to this site since July 20, 1993 is subject to the cumulative pollutant loading rates (CPLRs) - see instructions.)

a. Have you contacted DEQ or the permitting authority in the state where the sewage sludge subject to the CPLRs will be applied to ascertain whether bulk sewage sludge subject to the CPLRs has been applied to this site since July 20, 1993? _____ Yes _____ No

If "No", sewage sludge subject to the CPLRs may not be applied to this site.

If "Yes", provide the following information:

Permitting authority: _____

Contact person: _____

Phone: (_____) _____

b. Based upon this inquiry, has bulk sewage sludge subject to the CPLRs been applied to this site since July 20, 1993? _____ Yes _____ No If "No", skip the rest of Question 6. If "Yes", answer questions c - e.

c. Site size, in hectares: _____ (one hectare = 2.471 acres)

d. Provide the following information for every facility other than yours that is sending or has sent sewage sludge subject to the CPLRs to this site since July 20, 1993. If more than one such facility sends sewage sludge to this site, attach additional pages as necessary.

Facility name: _____

Facility contact: _____

Title: _____

Phone: (_____) _____

Mailing address.

Street or P.O. Box: _____

City or Town: _____ State: _____ Zip: _____

e. Provide the total loading and allotment remaining, in kg/hectare, for each of the following pollutants:

	Cumulative loading	Allotment remaining
Arsenic	_____	_____
Cadmium	_____	_____
Copper	_____	_____
Lead	_____	_____
Mercury	_____	_____
Nickel	_____	_____
Selenium	_____	_____
Zinc	_____	_____

Complete Questions 7-12 below only if you apply sewage sludge, or you are responsible for land application of sewage sludge. Information required by these questions may be prepared as attachments to this form. Skip the following questions if you contract land application to someone else (as indicated under Section A.7) who is responsible for the operation.

7. Sludge Characterization. Use the table below or a separate attachment, provide at least one analysis for each parameter.

PCBs (mg/kg)	_____
pH (S. U.)	_____
Percent Solids (%)	_____
Ammonium Nitrogen (mg/kg)	_____
Nitrate Nitrogen (mg/kg)	_____
Total Kjeldahl Nitrogen (mg/kg)	_____
Total Phosphorus (mg/kg)	_____
Total Potassium (mg/kg)	_____
Alkalinity as $CaCO_3$* (mg/kg)	_____

* Lime treated sludge (10% or more lime by dry weight) should be analyzed for percent $CaCO_3$.

8. Storage Requirements.

Existing and proposed sludge storage facilities must provide an estimated annual sludge balance on a monthly basis incorporating such factors as storage capacity, sludge production and land application schedule. Include pertinent calculations justifying storage requirements.

Proposed sludge storage facilities must also provide the following information:

a. A sludge storage site layout on a 7.5 minute topographic quadrangle or other appropriate scaled map to show the following topographic features of the surrounding landscape to a distance of 0.25 mile. Clearly mark the property line.

1) Water wells, abandoned or operating
2) Surface waters
3) Springs
4) Public water supply(s)
5) Sinkholes
6) Underground and/or surface mines
7) Mine pool (or other) surface water discharge points
8) Mining spoil piles and mine dumps
9) Quarry(s)
10) Sand and gravel pits
11) Gas and oil wells
l2) Diversion ditch(s)
13) Agricultural drainage ditch(s)
14) Occupied dwellings, including industrial and commercial establishments
15) Landfills or dumps
16) Other unlined impoundments
17) Septic tanks and drainfields
18) Injection wells
19) Rock outcrops

b. A topographic map of sufficient detail to clearly show the following information:

1) Maximum and minimum percent slopes
2) Depressions on the site that may collect water
3) Drainageways that may attribute to rainfall run-on to or runoff from this site
4) Portions of the site (if any) which are located with the 100-year floodplain and how the storage facility will be protected from flooding

c. Data and specifications for the storage facility lining material.

d. Plan and cross-sectional views of the storage facility.

e. Depth from the bottom of the storage facility to the seasonal high water table and separation distance to the permanent water table.

9. Land Area Requirements. Provide calculations justifying the land area requirements for land application of sewage sludge taking into consideration average soil productivity group, crop(s) to be grown and most limiting factor(s) of the sewage sludge, specifically Plant Available Nitrogen (PAN), Calcium Carbonate Equivalence (CCE), and metal loadings

(CPLR sewage sludge only), where applicable. Relate PAN, CCE, and metal loadings to demonstrate the most limiting factor for land application.

10. Landowner Agreement Forms. Provide a properly completed Sewage Sludge Application Agreement Form (attached) for each landowner if sewage sludge is to be applied onto land not owned by the applicant.

11. Ground Water Monitoring.

Are any ground water monitoring data available for this land application site? _____ Yes _____ No

If "Yes", submit the ground water monitoring data with this permit application. Also submit a written description of the well locations, approximate depth to ground water, and the ground water monitoring procedures used to obtain these data.

12. Land Application Site Information.

(Complete Items a-d for sites receiving infrequent application - land application of sewage sludge up to the agronomic rate at a frequency of once in a 3 year period; complete Items a-h for sites receiving frequent application - land application of sewage sludge in excess of 70% the agronomic rate at a frequency greater than once in a 3 year period)

a. Provide a general location map for each county which clearly indicates the location of all the land application sites.

b. For each land application site provide a site plan of sufficient detail to clearly show the concerned landscape features and associated buffer zones (See instructions). Provide a legend for each landscape feature and the net acreage for each field taking into account the proposed buffer zones.

c. In order to ensure that land application of bulk sewage sludge will not impact federally listed threatened or endangered species or federally designated critical habitat, the applicant must notify the field office of the U. S. Department of the Interior, Fish and Wildlife Service (FWS), by a letter, the proposed land application activities with the identification of the land application sites. The address and phone number of FWS are provided below.

U.S. Fish and Wildlife Service
Virginia Field Office
P.O. Box 480
White Marsh, VA 23183
TEL: (804) 693-6694

Provide a copy of the notification letter with this application form.

d. Provide a soil survey map, preferably photographically based, with the field boundaries clearly marked. (A USDA-SCS soil survey map should be provided, if available.)

Provide a detailed legend for each soil survey map which uses accepted USDA-SCS descriptions of the typifying pedon for each soil series (soil type). Complex associations may be described as a range of characteristics. Soil descriptions shall include as a minimum the following information.

1) Soil symbol
2) Soil series, textural phase and slope range
3) Depth to seasonal high water table
4) Depth to bedrock
5) Estimated soil productivity group (for the proposed crop rotation)

Item e - h are required for sites receiving frequent application of sewage sludge

e. In order to verify the information provided in item d, characterize the soil at each land application site. Representative soil borings or test pits to a depth of five feet or to bedrock if shallower, are to be coordinated for the typifying pedon of each soil series (soil type). Soil descriptions shall include as a minimum the following information:

1) Soil symbol
2) Soil series, textural phase and slope range
3) Depth to seasonal high water table
4) Depth to bedrock
5) Estimated soil productivity group (for the proposed crop rotation)

f. Collect and analyze soil samples from each field, weighted to best represent each of the soil borings performed for Item e. Using the table below or a separate attachment, provide at least one analysis per sample for each of the following parameters.

Soil Organic Matter (%) _____

Soil pH (std. units) _____

Cation Exchange Capacity (meq/100g) _____
Total Nitrogen (ppm) _____
Organic Nitrogen (ppm) _____
Ammonia Nitrogen (ppm) _____
Nitrate Nitrogen (ppm) _____
Available Phosphorus (ppm) _____
Exchangeable Potassium (mg/100g) _____
Exchangeable Sodium (mg/100g) _____
Exchangeable Calcium (mg/100g) _____
Exchangeable Magnesium (mg/100g) _____
Arsenic (ppm) _____
Cadmium (ppm) _____
Copper (ppm) _____
Lead (ppm) _____
Mercury (ppm) _____
Molybdenum (ppm) _____
Nickel (ppm) _____
Selenium (ppm) _____
Zinc (ppm) _____
Manganese (ppm) _____
Particle Size Analysis or USDA Textural Estimate (%) _____

g. Relate the crop nutrient needs to anticipated yields, soil productivity rating and the various fertilizer or nutrient sources from sludge and chemical fertilizers. Describe any specialized agronomic management practices which may be required as a result of high soil pH. If the sludge is expected to possess an unusually high CCE or other unusual properties, provide a description of any plant tissue testing, supplemental fertilization or intensive agronomic management practices which may be necessary.

h. Using a narrative format and referencing any related charts, describe the proposed cropping system. Show how the crop rotation and management will be coordinated with the design of the land application system. Include any supplemental fertilization program, soil testing and the coordination of tillage practices, planting and harvesting schedules and timing of land application.

SEWAGE SLUDGE APPLICATION AGREEMENT - N/A

This sewage sludge application agreement is made on this date _____ between _____, referred to here as "landowner", and _____, referred to here as the "Permittee".

Landowner is the owner of agricultural land shown on the map attached as Exhibit A and designated there as _____ ("landowner's land"). Permittee agrees to apply and landowner agrees to comply with certain permit requirements following application of sewage sludge on landowner's land in amounts and in a manner authorized by VPDES permit number _____ which is held by the Permittee.

Landowner acknowledges that the appropriate application of sewage sludge will be beneficial in providing fertilizer and soil conditioning to the property. Moreover, landowner acknowledges having been expressly advised that, in order to protect public health, the following site restrictions must be adhered to when sewage sludge receives Class B treatment for pathogen reduction:

1. Food crops with harvested parts that touch the sewage sludge/soil mixture and are totally above the land surface shall not be harvested for 14 months after application of sewage sludge;
2. Food crops with harvested parts below the surface of the land shall not be harvested for 20 months after application of sewage sludge when the sewage sludge remains on the land surface for four months or longer prior to incorporation into the soil;
3. Food crops with harvested parts below the surface of the land shall not be harvested for 38 months after application of sewage sludge when the sewage sludge remains on the land surface for less than four months prior to incorporation into the soil;
4. Food crops, feed crops, and fiber crops shall not be harvested for 30 days after application of sewage sludge;
5. Animals shall not be grazed on the land for 30 days after application of sewage sludge;
6. Turf grown on land where sewage sludge is applied shall not be harvested for one year after application of the sewage sludge when the harvested turf is placed on either land with a high potential for public exposure or a lawn, unless otherwise specified by the State Water Control Board;
7. Public access to land with a high potential for public exposure shall be restricted for one year after application of sewage sludge;
8. Public access to land with a low potential for public exposure shall be restricted for 30 days after application of sewage sludge.
9. Tobacco, because it has been shown to accumulate cadmium, should not be grown on landowner's land for three years following the application of sewage sludge borne cadmium equal to or exceeding 0.5 kilograms/hectare (0.45 pounds/acre).

Permittee agrees to notify landowner or landowner's designee of the proposed schedule for sewage sludge application and specifically prior to any particular application to landowner's land. This agreement may be terminated by either party upon written notice to the address specified below.

Landowner:	Permittee:
_____	_____
Signature	Signature
_____	_____
Mailing Address	Mailing Address

SECTION D. SURFACE DISPOSAL – N/A

Complete this section only if you own or operate a surface disposal site. Provide the information for each active sewage sludge unit.

1. Information on Active Sewage Sludge Units.

a. Unit name or number: N/A_____

b. Unit location

i. Street or Route#: _____

County: _____

City or Town: _____ State: _____ Zip: _____

ii. Latitude: _____ Longitude: _____

Method of latitude/longitude determination
_____ USGS map _____ Filed survey _____ Other

c. Topographic map. Provide a topographic map (or other appropriate map if a topographic map is unavailable) that shows the site location.

d. Total dry metric tons of sewage sludge placed on the active sewage sludge unit per 365-day period:

_____ dry metric tons.

e. Total dry metric tons of sewage sludge placed on the active sewage sludge unit over the life of the unit:

_____ dry metric tons.

f. Does the active sewage sludge unit have a liner with a minimum hydraulic conductivity of 1×10^{-7} cm/sec?
_____ Yes _____ No If "Yes", describe the liner or attach a description.

_____

_____

g. Does the active sewage sludge unit have a leachate collection system? _____ Yes _____ No

If "Yes", describe the leachate collection system or attach a description. Also, describe the method used for leachate disposal and provide the numbers of any federal, state or local permits for leachate disposal:

_____

_____

_____

h. If you answered "No" to either f or g, answer the following:
Is the boundary of the active sewage sludge unit less than 150 meters from the property line of the surface disposal site? _____ Yes _____ No If "Yes", provide the actual distance in meters: _____

i. Remaining capacity of active sewage sludge unit, in dry metric tons: _____ dry metric tons

Anticipated closure date for active sewage sludge unit, if known: _____ (MM/DD/YYYY)

Provide with this application a copy of any closure plan developed for this active sewage sludge unit.

2. Sewage Sludge from Other Facilities.

Is sewage sludge sent to this active sewage sludge unit from any facilities other than yours? _____ Yes _____ No

If "Yes", provide the following information for each such facility, attach additional sheets as necessary.

a. Facility name: _____

b. Facility contact: _____

Title: _____

Phone: (_____) _____

c. Mailing address:

Street or P.O. Box: _____

City or Town: _____ State: _____ Zip: _____

d. List, on this form or an attachment, the facility's VPDES permit number as well as the numbers of all other federal, state or local permits that regulate the facility's sewage sludge management practices:

Permit Number: Type of Permit:

_____ _____

_____ _____

e. Which class of pathogen reduction is achieved before sewage sludge leaves the other facility?
_____ Class A _____ Class B _____ Neither or unknown

f. Describe, on this form or on another sheet of paper, any treatment processes used at the other facility to reduce pathogens in sewage sludge: _____

_____

_____

g. Which vector attraction reduction option is achieved before sewage sludge leaves the other facility?

_____ Option 1 (Minimum 38 percent reduction in volatile solids)

_____ Option 2 (Anaerobic process, with bench-scale demonstration)

_____ Option 3 (Aerobic process, with bench-scale demonstration)

_____ Option 4 (Specific oxygen uptake rate for aerobically digested sludge)

_____ Option 5 (Aerobic processes plus raised temperature)

_____ Option 6 (Raise pH to 12 and retain at 11.5)

_____ Option 7 (75 percent solids with no unstabilized solids)

_____ Option 8 (90 percent solids with unstabilized solids)

_____ None or unknown

h. Describe, on this form or another sheet of paper, any treatment processes used at the other facility to reduce vector attraction properties of sewage sludge: _____

_____

_____

i. Describe, on this form or another sheet of paper, any other sewage sludge treatment activities performed by the other facility that are not identified in e - h above: _____

_____

_____

3. Vector Attraction Reduction.

a. Which vector attraction reduction option, if any, is met when sewage sludge is placed on this active sewage sludge unit?

_____ Option 9 (Injection below land surface)

_____ Option 10 (Incorporation into soil within 6 hours)

_____ Option 11 (Covering active sewage sludge unit daily)

b. Describe, on this form or another sheet of paper, any treatment processes used at the active sewage sludge unit to reduce vector attraction properties of sewage sludge: _____

_____

_____

4. Ground Water Monitoring.

a. Is ground water monitoring currently conducted at this active sewage sludge unit or are ground water monitoring data otherwise available for this active sewage sludge unit? _____ Yes _____ No

If "Yes", provide a copy of available ground water monitoring data. Also provide a written description of the well locations, the approximate depth to ground water, and the ground water monitoring procedures used to obtain these

data.

b. Has a ground water monitoring program been prepared for this active sewage sludge unit?
_____ Yes _____ No If "Yes", submit a copy of the ground water monitoring program with this application.

c. Have you obtained a certification from a qualified ground water scientist that the aquifer below the active sewage sludge unit has not been contaminated? _____ Yes _____ No

If "Yes", submit a copy of the certification with this application.

5. Site-Specific Limits.

Are you seeking site-specific pollutant limits for the sewage sludge placed on the active sewage sludge unit?
_____ Yes _____ No If "Yes", submit information to support the request for site-specific pollutant limits with this application.

PUBLIC NOTICE BILLING INFORMATION

I hereby authorize the Department of Environmental Quality to have the cost of publishing a public notice billed to the Agent/Department shown below. The public notice will be published once a week for two consecutive weeks in *the Free Lance Star* in accordance with 9 VAC25-31-290.C.2

Agent/Department to be billed:	King George County Service Authority
Owner:	King George County Service Authority
Agent/Department Address:	9207 Kings Highway
	King George, VA 22485
Agent's Telephone No.:	(540) 775-2746
Printed Name:	Christopher F. Thomas, PE
Authorizing Agent – Signature:	Christopher F. Thomas
Date:	July 12, 2013

VPDES Permit No.: VA0026514

Facility Name: DAHLGREN WASTEWATER TREATMENT PLANT